AMERICAN JOURNAL of VETERINARY MEDICINE

PUBLISHED MONTHLY. Copyright 1912 by D. M. CAMPBELL, CHICAGO, U. S. A.

Vol. VII DECEMBER, 1912 No. 12

The Veterinary Situation in Iowa*

By W. W. DIMOCK, Ames, Iowa
Resident Secretary for the A. V. M. A.

FOR the sake of convenience I have divided my report into three parts:

1. OFFICIAL VETERINARIANS OF IOWA AND THEIR DUTIES

This includes the state veterinary surgeon, appointed by the governor for a term of three years, and fifty-five assistant state veterinarians, all appointed by the governor.

Duties of the State Veterinarian

These include supervision of all contagious and infectious diseases among domestic animals within the state, and those in transit through the state, to establish quarantine against infectious diseases, to enforce laws respecting importations of stock for dairy or breeding purposes, to cooperate with the local boards of health in the eradication of contagious diseases among live stock, and to take such action as the exigencies of the cases may demand.

The state veterinarian is authorized to manufacture and deliver at actual cost thereof, hog cholera serum, and is director of the hog cholera-serum laboratory. An appropriation of $5000 is allowed for carrying out the provisions of the act. The serum is furnished applicants upon their written request and when desired the state veterinarian or his authorized assistants administer the serum at the expense of the applicant.

Commission of Animal Health.—This is a new state board; it consists of five members, the state veterinarian who is chairman and chief executive officer, two veterinarians and two stockmen, each appointed by the governor for a term of three years.

The Animal Health Commission must hold at least two meetings a year, and it has power and authority to make such rules and regulations as may be necessary for the prevention, suppression and quarantine of diseases among animals in the state and those being driven or transported through or into Iowa. Such rules and regulations are to be effective when approved by the executive council.

State Veterinary Examining Board.—The state veterinary surgeon and the other two veterinarians on the Animal Health Commission constitute a board for the examination of applicants to practice veterinary medicine, surgery and dentistry.

2. VETERINARY EDUCATION

In dealing with the question of veterinary education in the state of Iowa, I want to begin with the year 1909 and briefly review to date the development of the Division of Veterinary Medicine of the Iowa State College. From what was practically a one-man school without adequate quarters, equipment or funds there has been developed a modern and model school for the teaching of veterinary medicine. This was made possible through liberal appropriations by the state legislature for buildings and equipment, from recognition and in-

*Report to the 47th Annual Meeting, A. V. M. A.

creased support through the board of education and the president of the college and from the untiring effort and liberal views of the present dean, Dr. C. H. Stange.

In 1910 the entrance requirements were raised to fifteen units and the requirements for graduation have also been materially raised. There are at present eight veterinarians on the faculty, seven of whom devote all their time to teaching in the veterinary division, and one to extension work, and to giving instruction to two-year agricultural students.

The alumni of the division of Veterinary medicine are lending their support to its welfare, and many kind words come from the profession throughout the state. The Board of Veterinary Examiners is now made up of competent, sincere men who conduct an examination that is worthy of the name.

The state veterinarian is doing a good and much needed work and with his numerous able assistants reaches practically every part of the state.

The spirit of cooperation existing among the state veterinarian, the college and the profession has done much to further the interests of the profession and bring about a closer relation with the livestock interests and to get general support for the things that we are trying to do. It has, I believe, greatly aided us in getting the support of our congressman and Senators for the Army Veterinary Bill.

3. Animal Diseases

In discussing the diseases I will take up first the more common infectious maladies. In many of these the etiology and morbid anatomy are well understood, yet we seem unable to arrive at any adequate and satisfactory method of handling them.

Glanders has during the last year, given considerable trouble. Investigation shows that animals shipped into the state have, in practically all instances, been responsible for the introduction of the infection.

Mallein has proven unsatisfactory as a diagnostic agent in general use and the profession has about lost all confidence in it.

Dourine. Apparently the outbreak of dourine which occurred a year ago was well cleaned up. All suspects are still in quarantine. A few are showing suspicious symptoms. No suspicious cases have yet been found outside of the quarantined area.

Colt Distemper. The young horses of the state sooner or later suffer from strangles and a catarrhal inflammation of the nose and throat, complications often result from lack of, or improper treatment which make a differential diagnosis necessary yet often difficult, especially when such animals are found in a stable or field with a case of glanders.

Azoturia is encountered rather frequently always affecting our best horses, with a high mortality.

Forage poisoning has caused heavy losses on some farms. The heaviest losses came as a result of feeding mouldy ensilage while other feeds such as fodder ear-corn and hay were much less responsible.

Stockmen are frequently ill-advised by writers on agricultural subjects or by an over-zealous salesman in regard to feeding ensilage to horses. Consequently insufficient care is exercised in selecting only clean and sweet ensilage for this animal.

Sclerostomiasis. Infestation with the sclerostomum equinum (Strongylus armatus) has given a great deal of trouble and in some parts of the state has been the cause of many deaths especially in young horses, one to four years of age. Reports of this trouble began to come in in the fall and continued until late in the spring. The first deaths were apparently all from acute attacks and showed upon postmortem the agamous parasite in the arteries while later the cases became chronic, the animal being in acondition of ill health and emaciation for many weeks. Upon postmortem examination the arterial lesions were of a chronic character but hundreds of the mature parasite were found in the intestinal content.

Acariasis. Mange of the horse, both sarcoptic and psoroptic has occurred in a number of localities.

Tuberculosis. While we possibly have more than our share of tuberculosis among farm animals the indications are that the stockman are beginning to take an interest in the different methods of eradicating this disease from their herds and I believe that in time the great majority will come to

see the economic advantage of ridding their cattle of tuberculosis. This we believe will practically do away with tuberculosis in pigs and greatly reduce the number of cases in man.

The state veterinarian, in co-operation with some of his assistants, has cleaned up a number of dairy herds supplying milk to some of our smaller towns, so that a few towns in Iowa get their milk from herds that are free from tuberculosis.

Hemorrhagic septicemia is also quite common and I believe is often mistaken for blackleg. This statement is based on the fact that animals often continue to die following repeated vaccinations for blackleg.

Blackleg. Reports of emphysematous anthrax have come from a number of different sources.

Traumatic pericarditis. Six cases of this ailment in dairy cows have come under my personal observation within the last year. One of the best dairy cows in the state was saved by the removal, through the rumen and reticulum, of a nail that was penetrating the pericardium.

Hog Cholera has, and no doubt will continue to be a great menace to the swine industry of the state, but it is by no means the only difficulty which we have to meet.

During the past year hog cholera was prevalent pretty generally over the state. The practitioners were unable to get a sufficient quantity of serum to meet the demands. At the present writing cholera is known to exist only in a few places in Iowa.*

Enzootic Pneumonia. So-called chronic swine plague. This disease has been unusually common in Iowa this season. It is characterized by cough, more or less difficult respiration and catarrh of the respiratory mucous membrane. The disease is but slightly contagious with low mortality. Anatomical changes consist chiefly of a chronic broncho-pneumonia. Enzootic pneumonia is of considerable importance scientifically on account of its confusion with hog cholera and economically because of retarded growth as well as actual death in many cases.

*Since this report was written hog cholera has been on the increase, and is found now pretty generally over the state.

Rhinitis or *snuffles* in young shoats has been the cause of much trouble, this inflammatory condition generally terminates by invading the osseous structures of the head. The bones of the head become larger and abnormal in form giving a broad thick bull- or lion-head appearance, and this is the condition which we understand by the designation of bullnose.

Ulcerative or *necrotic stomatitis* is rather common in young pigs. It not infrequently terminates in healing the ulcers and the formation of subcutaneous inflammatory swellings about the nose and mouth. These enlargements usually undergo necrosis and have a very offensive odor. The conditions are often erroneously designated as bullnose.

Intestinal parasites, especially in young pigs, are proving to be of serious economic importance.

Trichiniasis. During the last year a number of persons, near Marshalltown, Iowa, died from trichinosis following the ingestion of pork sausage that contained the trichinella spiralis.

Paralysis in young shoats affecting the hind quarters has become a very troublesome condition. All attempts to successfully treat this affection have given little or no results.

Rabies has occurred among our domestic animals in various parts of the state. Persons bitten or otherwise exposed to infection may take the Pasteur treatment at the State University, Iowa City. When we consider the inadequacy of the quarantine measure both in efficiency and time in force, it is marvelous that all the dogs in the state do not become affected with the disease.

Chicken cholera or *hemorrhagic septicemia.* During the last two years we have had some very serious outbreaks of this disease. In some instances flocks of 500 to 1000 birds have suffered a loss of ninety-five percent from this disease. We are able to demonstrate that in many cases the infection was carried from farm to farm by streams.

Heterakiasis. In the fall of 1911 there existed pretty generally over the state a disease among poultry especially the young, the principal manifestation of which was a wasting or atrophy of the muscular system.

The disease did not spread from one to another from contact or association nor could it be transmitted by inoculation from the blood or tissue juices.

We found in the cecum of every bird autopsied large numbers of the heterakis papillosa, from 30 to 561, usually about 100 to 150. In that we were unable to transmit the disease or demonstrate the presence of any tissue change or morbific agent we believe the parasite to be the cause of the wasting and death.

Chicken paralysis. During the college year 1910–11 this disease was rather prevalent and because of the possible connection between it and infantile paralysis we received many inquiries, and cases for examination. All attempts to transmit the disease by inoculation failed.

Around the plexus supplying the affected leg or wing we found an inflammatory new growth composed of fibrous tissue cells and fibrin. The endoneurium of the nerve trunk passing through the involved plexus was materially thickened by the formation of fibrous tissue.

Undescribed disease. There exists in the state another very fatal disease of poultry that has some of the characteristics of cholera but we find in the tissues a bacillus that differs morphologically and culturally from avisepticus and instead of the characteristic hemorrhagic lesions, especially on the heart, we find an exudative inflammation of the parenchymatous organs, being marked on the heart and liver.

Malignant Catarrhal Fever. During the past year many sheep shipped in for feeding purposes were affected, usually within a few days after arrival, with a disease apparently new to this section of the country. It is characterized by a high temperature (104 to 107), depression, loss of appetite, mucopurulent discharge from nostrils and eyes, sometimes keratitis. Nodules and vesicles form in the skin of the head, inside of thighs or on external genitals. There is more or less edema of the ears, face and nose and usually a profuse diarrhea. In a large percentage of the cases the respiratory tract is affected, indicated by dyspnea.

Postmortem examination reveals, in many cases, besides the skin lesions a catarrhal pneumonia accompanied by small areas of caseous necrosis. There is also a hemorrhagic inflammation of the upper respiratory and intestinal tracts.

Clinical symptoms and postmortem lesions observed are almost identical with variola or sheep pox of Europe and malignant catarrhal fever of South Africa and in all probability is the same disease.

Veterinary Problems of Today

The live stock interests of the state are looking directly to the veterinarian for methods by which the loss of animals from disease may be lessened. The general public and local boards of health expect us to give them a pure milk and meat supply and to prevent the spread of intercommunicable diseases.

We feel that nine-tenths of all the ways by which infectious diseases spread either from animal to animal or from animals to persons are controllable. That this may be accomplished let us begin at the foundation.

Each college must instill into its students all the fundamental principles and specific facts necessary for the efficient handling of the numerous problems that are coming to the veterinarian. Let us impress upon them that they are not upon graduation going into business but that they are going out to practice a profession. And that they must ever keep in mind, when making rules and regulations, "That the interests of the many shall dominate over the selfish assertion of individual rights."

In my report I have attempted to name and briefly describe the more important diseases and problems which we have to meet and to give the profession some idea of the organization we have to work with.

I wish to thank Doctors C. H. Stange and J. I. Gibson and other members of the profession in the state for data furnished and suggestions in making up this report.

VETERINARY SURGEON TO THE KING

Master of the Horses' Office, Royal News, Buckingham Palace, October 30th. The King has been graciously pleased to appoint Mr. Frederick Hobday, F. R. C. V. S., to be an Honorary Veterinary Surgeon to his Majesty.—*The Morning Post* (London), Saturday, Nov. 2, 1912.

Repair of Wounds*

By WILLIAM BRADY, M. D., Elmira, New York

THE general management of wounds should be based on a practical knowledge of the physiology and pathology of repair. With a thorough understanding of the process of healing the young tyro may bring about the cure of old varicose or other ulcers which his senior colleagues have perhaps pronounced incurable after years of empirical tinkering with various highly recommended ointments. Without going into details, a brief consideration of certain features of the healing process may be of interest.

In a wound not aseptic, inflammatory symptoms are apt to appear on the second day. Every case should therefore be seen at this time, whether the dressing is to be disturbed or not. It is often wise to leave a strand of silkworm or gauze in the lower angle of an accidental wound of whose asepsis there is much doubt, and to remove it on the second or third day if the wound is clean. The best dressing for such a case is the wet normal salt gauze, which is undeniably superior to dry gauze or ointments as a medium of drainage for exuding serum.

Sutures, if inserted, should be removed on the fifth day if there is no tension upon the edges of the wound. If tension is unavoidable, the sutures should remain until about the tenth day. It is generally well to reinforce, or even replace suturing by adhesive strapping to relieve undue tension. A wounded extremity is always more at rest in a flexed position if such position does not cause gaping of the wound. Absolute rest is best attained by means of suitable splints, or firm bandages in wounds of sufficient importance to require it, or make it advisable.

The floor of a deep laceration, as of the perineum, becomes covered after several hours with a varnish-like glazing of coagulated fibrin from the exuded serum. Suturing at this stage will give first-intention union oft times even better than primary suturing.

If not closed, an open glazed wound becomes covered in two or three days with a dirty grayish membrane, which separates after a few days and is discharged with the pus, leaving a base of bright red granulation tissue. Granulation tissue is the vascular framework upon which cicatricial tissue grows. When it reaches the level of the skin a transparent, delicate film appears around the edges and extends gradually out toward the center of the granulating surface, like ice freezing over a pond. This film is, of course, new epithelium, though I have seen nurses and doctors carefully wiping it away with wet gauze or cotton in the blissful notion that it was foreign material.

New epithelial cells are as readily destroyed by chemical antiseptics as are pyogenic bacteria. There is not only no excuse for washing a healing wound with germicides, but positively a contraindication to such maltreatment. Asepsis, not antisepsis, is the goal to strive for.

Granulation tissue in large wounds or ulcers aids repair also by contracting and drawing the edges closer together. This gives us a valuable hint for the use of adhesive plaster about large granulating surfaces. As to strapping directly upon the granulations, I have had only unpleasant results personally.

A wound whose edges are not approximated may still heal without suppuration if it be filled with aseptic blood clot, and kept aseptic—that is, left alone. A clean clot is an excellent culture medium for embryonic epithelial cells. As healing progresses, a portion of the unabsorbed clot is pushed out by the granulating tissue and dries in a scab which protects the surface of the wound. Aseptic clot repair occurs typically in simple fractures, subcutaneous tenotomies, internal rupture of organs and healing of bone cavities following the radical operation on sequestra. It is Nature's peerless method, and one that we should endeavor to imitate whenever the conditions permit. No other

*Reprint from *Medical Summary*.

packing is as good as clean blood clot. No other wash is as good as blood serum.

Given a recent wound of accidental nature, how shall we render it aseptic? In ordinary cases one thorough cauterization with iodine is usually sufficient, all subsequent dressings to be without antiseptics of any kind. In wounds which give rise to the fear of tetanus or rabies, however, pure phenol is preferable. If the wound has a cavity, the phenol should be poured in after moistening the surrounding skin with alcohol, and allowed to remain one minute. It may then be removed with a dropper and alcohol applied. If it is a puncture wound, the phenol must be applied on a cotton-wrapped probe, opening the track of the puncture if necessary to permit access to the farthest point. If it be a freely-bleeding wound, and still bleeding, I believe cauterizing is unnecessary under any conditions whatever.

Many authorities are now reporting happy results from leaving granulating wounds and ulcers freely exposed to the air, under a wire netting for protection against insects or injury. Some writers report excellent results from treating skin grafts in this manner.

Brewer's yeast is a remedy I have found very useful for hastening the separation of old sloughs and stimulating granulations. It smarts a trifle, but patients do not object to it, especially when they find they can obtain it for the asking. I have also given it in doses of one to two ounces internally, though with doubtful effects.

For painful wounds and ulcers generally a simple dressing kept wet with warm normal saline solution seems most useful. The patient appreciates it better if he is given normal salt tablets (which, by the way, make real imitation plasma), rather than being directed to dump a teaspoonful of common salt into a dish of water.

For ugly, painful old varicose ulcers a boon to the new doctor on the case is orthoform, applied either as a dusting powder or in five-percent ointment. Some patients will develop erythema from orthoform, much like those formerly common when iodoform was in use.

For exuberant granulations—"proud flesh," as patients seem to call it—I like the scissors. It can usually be trimmed off without discomfort. If this is not permissible, then firm pressure is the next method of choice. My experience with silver nitrate has been uniformly unsatisfactory. So far as I can see, silver nitrate merely musses up the field of operations and stimulates the granulations to renewed activity. The clean, prompt, effectual way to remove proud flesh is to cut it down.

Carbolic acid, in any other role than as a cauterant, is to be mentioned only to be condemned. There is nothing known to domestic surgery that will delay healing of a simple wound like carbolic salve, unless it be a fresh and reeking poultice of genuine cow dung.

Antiseptics, other than cauterants or recognized disinfectants, might well be discarded from the office altogether. We have little use for them. Once having asepticized a wound, I am sure the best policy from that point on is to avoid antiseptics and depend wholly upon simple cleanliness, with due regard to the all-important consideration of the patient's opsonic immunity and general condition.

Vaccine therapy and internal medication are chapters by themselves. Our chief duty is to stand by fully armed while Nature does the work.

In dry old varicose ulcers, carbuncles with little fluid drainage, and indurated swellings of various kinds in which incision is not productive of the usual benefit, the engorgement and coagulation of lymph in the vessels about the lesion is probably preventing free access of fresh opsonins or antibodies to the site of infection.

Wright and others report good results in such cases from the use of citric acid internally in sixty-grain doses every three hours until a freer exudation of serum is obtained from the wound. The local use of citrate of sodium and salt solution is also advised—one-tenth of one percent citric acid and four percent sodium chlorid wet dressings.

One case of Ludwig's angina, reported by Sir Almroth Wright, seemed hopeless despite free vertical incisions in the neck and a measured opsonic index of 1.8, there being serious physical prostration and insufficient exudation from the incisions to

enable Wright to "fill a platinum loop" for culture. Yet two or three doses of citric acid, as mentioned above, resulted in free oozing from the incisions and immediate institution of convalescence. As Wright says, it was not the patient's lack of resisting power, not his need of vaccine treatment (as shown by the opsonic index), but merely the choking of the lymph vessels about the induration which prevented his ample supply of of antibactericidal bodies from reaching the streptococci in the wound or lesion and bringing about recovery.

Mistakes in the Distribution and Use of Antihog-Cholera Serum

By F. M. STARR, Odessa, Missouri

I WISH to make a few remarks in regard to the unnecessary prejudice against antihog-cholera serum and the serum-simultaneous method of vaccination which exists and is being fostered by some.

Antihog-cholera serum in my hands has given very satisfactory results during the past two years. Used on healthy herds the results have been very gratifying. Immunity was produced as was demonstrated by placing sick hogs with vaccinated herds and allowing them to die there. *Serum alone is not satisfactory*, since hogs so vaccinated when placed with sick hogs contracted disease and died three or four weeks after the vaccination. To make the immunity permanent *the double method must be used.*

When we are dealing with herds in which there are a great many seemingly well hogs and a few sick ones, we must use the thermometer, employ sound judgment and make correct diagnoses. The diagnosis can be made in herds where there are sick animals by sacrificing one of the weakest hogs for a postmortem examination. This will place the veterinarian on a firmer basis. It takes more time but it will be rewarded in the future, as it will enable you to give your client a prognosis, as to what to expect from the serum or from internal medication.

The chief cause of so much prejudice against the serum is the failures that result from its improper use. Many serum manufacturers, in order to get business will place it in the hands of the farmer or any unqualified person and undertake to educate him as to its uses by "hot air."

In some states the veterinarians in the experiment stations are required by laws (usually draughted with their advice and consent) to distribute the serum to any farmer who asks for it. The farmer is not versed as to what constitutes a cubic centimeter, he has no exact knowledge of asepsis nor any adequate conception of how to handle the virulent blood; armed with the latter and a hypodermic syringe he is an agent of destruction and a menace to his community that should be strictly prohibited by law.

He usually finds the directions for the use of the serum apparently so simple and the work of vaccinating hogs so agreeable that he just finishes up the neighborhood while he is about it. He may keep the serum on ice until it is used if he has any ice but not every farmer has it. He is more inclined to vaccinate sick than well hogs, and to save expense he may give less serum than the directions call for. So he starts in, his hogs continue to die and in five or ten days begin to die faster and word goes out to his neighbors and to the public that the serum is killing his hogs. If cholera was not already present in the herds vaccinated and the virus starts it, the objections are even louder.

I have frequently gone to herds, where nearly every hog was seemingly a well one, and found the temperatures ranging from normal up to 106° or 107° F. and even higher and as a result of the use of the thermometer I have had to change my plan altogether because of conditions which I would not have suspected but for taking

the temperatures. These hogs looked as well as any hogs and had that curl in the tail which with some is a criterion of health but it straightened out in a day or two later.

Their own interest if nothing else should compel serum manufacturers to so safeguard the use of their product that it would always be applied scientifically. The use of antihog-cholera serum has already reached its zenith if this is not done in the future, already the mumblings against this serum have become a roar.

I have vaccinated and given the serum-alone treatment to over three thousand hogs, have learned a great deal doing this, am still learning and expect to continue to learn new things about hog cholera and the use of the serum. Out of the number vaccinated I have saved over sixty percent of the animals in infected and non-infected herds.

If we expect the serum to give the scientists who have spent years in its perfection the honor which should be placed to their credit and to our profession, as they were of course veterinarians, and to maintain the confidence of the national and state governments, it is absolutely essential to handle it properly and see that none but those qualified to so handle it obtain it. If liverymen, auctioneers, farmers and careless or incompetent veterinarians, had never been allowed to use either the serum or the virus the serum treatment would be gaining ground now in place of losing it.

Some of our medical firms are picking out the bad results and features of this treatment and calling attention to it. This is a very poor policy as it creates prejudice, and goodness knows we have enough piled against our profession without adding more to it.

The public may blame the veterinary profession for the use of anthrax vaccine or blackleg vaccine by some illiterate, would-be horse doctor, during the Kansas-Nebraska-forage-poison epizootic, from the effect of which every animal that was treated died in a few days but the profession is not to blame for it, we need better education or more law enforcement.

The discovery and perfection of antihog-cholera serum has been a blessing to the hog industry. A great many agricultural periodicals do it an injustice by making mention of its failures but not its triumphs. My clients last year are my clients this year; this gives me confidence in serum-virus method.

This spring I have vaccinated a nice crop of spring pigs for my clients with satisfactory results. This shows the double method is not a dangerous factor in spreading disease. A herd of hogs that have been vaccinated are no more dangerous to other hogs in the vicinity than a herd that has recovered from the cholera. There are hogs that are regular "cholera carriers" and here is a great field for the serum for without it the "cholera carrier" infects every new litter of pigs or other susceptible hogs brought into the premises.

Contagious pneumonia is also prevalent among hogs, vaccinate them and you give vaccine a black eye, but if a veterinarian is called in and exercises proper precautions he will find the pulmonary symptoms, coughing and altered breathing predominating. The client will be well paid by sacrificing one for a postmortem examination and will save an unnecessary expense as antihog-cholera serum is made for hog cholera only.

Sanitation goes a long way in this condition and if the weather is warm I run them through the dipping tank as soon as vaccinated, this will get rid of the lice and will prevent spread of the disease if some of the virus should leak from the puncture or escape from syringe onto the surface of the skin and later reach susceptible animals.

I always wipe the site of the puncture with cotton which has been dipped into an antiseptic immediately after the vaccination and then place hogs in clean lots. If there are sick hogs in the herd I separate them from the others, keep all feed from them for forty-eight hours and treat them with intestinal antiseptics such as Sulphocarbolates Compound, or serum or whatever method I think best, or owner prefers because of the financial side of it. After forty-eight hours I feed them very sparingly at first on ground oats.

I see some writers claim that the outbreak this year is more extensive than that of 1911. It is not so with me but there is

cholera this year on farms where hogs were never vaccinated and also on farms where hogs died after being vaccinated last year because they were sick when treatment applied and on this account these farmers are prejudiced against the serum. It is hard to impress the laity with the fact that a vaccine is a virus, is intended for well hogs only, and that it produces a mild form of the disease.

If the members of our profession will use the proper precautions in using antihog-cholera serum and the manufacturers will seek for a high reputation for their serum and not teach that it is just a simple thing that can be used by any one, their business will grow when we gain the confidence of the farmer, and serum will make its own reputation.

As to the condemnation of the use of the serum because it causes necrotic centers in hams; this is of course very objectionable. I find that results are just as good when the injection of the serum is made into the internal scapular muscles. This does not break down so much tissue as does the large injection and if it should become necrotic which I think is rare the loss is not so great.

Encephalo Embolic Strongylosis or En-Cranial Strongylogenic Embolism

EDITOR'S NOTE.—The sudden cessation of the recent "horse plague" in Kansas left a number of more or less probable theories as to its cause neither proved nor disproved, and it is doubtful if enough evidence was obtained to positively prove or disprove any of them until further experience can be had in another visitation of the same disease. Among these theories is the following one, which the author, a scientific man, is not willing to subscribe to until he can offer further facts in its support.

This theory is held by a very considerable number of the veterinarians in the region where the disease was prevalent and was publicly endorsed by a majority of the members of the State Board of Veterinary Examiners for Kansas. Without his consent, I have taken the liberty of putting down more or less crudely the thoughts and observations of one who has given this theory more study than any one else and offer it here for the careful consideration which it deserves, not only as bearing upon the recent "horse plague" but also because of its interest and importance to all veterinarians who have to do with any of the possible sequels of strongylosis as here described, and this includes all who give any attention to equine practice.

FOLLOWING a very extensive reading of the exhaustive work done on the human brain and its diseases, I am convinced the symptoms of the Kansas horse plague and the lesions so far as they were observed, coincide *exactly* in every way to embolism of certain terminal arteries of the brain. Every broad-minded and fair man who will thoughtfully peruse this same literature cannot help agreeing with this fact.

The ideal conditions of climate favorable at the right time for the preservation and perpetuation of certain stages of the Strongylus armatus resulted in an extraordinarily large number of their larvæ being in the intestinal tracts of the horses in the infested districts at this time. This in turn means that an extraordinarily large number were entering the sub-mucosa and sub-serosa for the encystment stage. This in turn is followed by proportionately greater numbers following their well-known perverted habit of burrowing up the loose great mesentery and burrowing into the wall of the tough great anterior mesenteric artery, and other vessels, increases its opportunities to enter the lumen of the vessels and into the free stream.

This does not state or even imply that other causes cannot or do not produce exactly the same symptoms also. It merely serves to broaden the thought and increase the channels.

Dr. Burton R. Rogers
VETERINARIAN

The moment this larva enters the liquid of any artery vein or lacteal it fulfils the definition and is an embolus. (Kinsley.)

There are *eighteen* different vessels or chances by which these larvæ may enter the cranial cavity.

Just *one*, no matter whether it is one out of thousands or *one out of less than ten*, when in the right place, is enough to produce embolism of the brain.

If the above two conditions or facts co-existed, the result is plain, and as accurate and positive as $2+2=4$. It would be absolutely impossible for anything but that disease to follow.

This does not state or even imply that other causes may not produce the emboli, such as bacterial agglutination, bacteria, molds, toxins, clots, and other similar agencies.

I have been told that the King of Italy knighted a man in the 90's who had "discovered" the bacillus icteroides to be the cause of yellow fever. But a few years later it took the risk and loss of the lives of Reed, Carrol, and Lazear to prove that he was *wrong* and that the absolutely *necessary* factor in the transmission of malaria was the mosquito.

Volumes and volumes of "scientific" material were written upon yellow fever and an indefinite "miasma." But one correct sentence regarding the mosquito and yellow fever is worth more than all the volumes and records of *previous* research and theory.

If gold is on the east side of a river and none on the west, a thousand men digging and searching on the west will *never* find the gold, but one man not even looking for it may accidentally stumble upon it on the east. And so the search for the cause of disease, the river or dividing line between plant and animal life may be important enough to stampede across.

We now enclose "miasma" which no one ever saw, in quotation marks, and I am confident that some of the causes, including "mold" in connection with the Kansas horse plague, will some day be similarly written.

Inasmuch as the positive essential specific cause of the recent Kansas horse plague has not thus far been satisfactorily demonstrated to all, and therefore not entirely agreed upon, the field is still open for the study and consideration by all broad-minded scientific veterinarians and others of all the plausible and well-grounded theories.

One or more of the theories already presented is probably correct. If not, however, one of them or a combination of them may lead to work that will ultimately solve the problem. For every *"why"* in nature, there is a *reason*.

After extensive reading and thought along certain lines during the past few months, I am convinced the Strongylus armatus is the most destructive enemy extant of farm horse in certain climates and seasons—but for reasons that have not been given heretofore or even suspected.

Still my theory was and is based upon observed facts in connection with the recent Kansas outbreak, together with scattered and *unconnected* but *recorded facts* in anatomy, biology, and pathology. I do not ask any one to agree with the theory I have evolved from these observations and facts. All I ask is that the *facts* be considered and the theory be eliminated only by further *investigation* and *experiment*—and not by *opinion* alone.

I venture to say without fear of contradiction, that there does not or never did exist an expert veterinary neurologist. Neither does there exist a veterinarian who is an expert specialist and sole investigator of helminthology. Outside of the anatomy lecturers, there are very few men who know both surgical and medicinal veterinary anatomy or rather exact anatomy—or who can see the blood vessels and the circulating medium with an x-ray eye. I am sure there is no veterinarian who combines all these fields as a joint specialist. Yet I firmly believe the cause of this disease will be worked out by combining and interlocking existing knowledge within these three fields of science, together with a slight additional knowledge that will come from future research.

Neurological Facts

1. In the cranial cavity are nuclei or nerve centers or collections of nerve-cell bodies in certain masses or areas, that have

specific definite control over certain functions of the entire body.

The most vital centers are located in the medulla oblongata. The respiratory center—the vasomotor center—the cardiac center—the *deglutition* center—the urination center—and the centers or nerve-cell bodies of the last eight cranial nerves, together with the trophic or nutritional nerves of all the above—all are located in the medulla.

In addition to this, the nerve fibres of tracts from every other center in the brain pass through and become a part of the medulla as they pass out of the cranial cavity to their ultimate destination.

2. Blood (together with whatever foreign matter or bodies it may carry in solution or suspension) can enter the cranial cavity by eighteen different vessels, or nine pairs as follows—internal carotids, vertebrals occipitals, middle spinal, ophthalmics, mastoids, spheno-spinous or great meningeals and two branches of the prevertebrals. The last five pairs supply the meninges. The first four enter the Circle of Willis at the base of the brain. In the human brain (and probably quite similarly in the horse) eighteen named pairs of intrinsic terminal arteries pass up from the circle of Willis and from the basilar artery to supply isolated and definite areas of the brain and of the medulla.

A terminal or end artery is an artery supplying a certain definite cone-shaped or wedge-shaped or tree-shaped area, and has absolutely *no anastomosis* of any kind with any other artery. Therefore it is the *only* artery supplying that particular area with nutrition and life.

4. Terminal arteries are found in the kidneys; in the spleen; in the lungs; *and in the brain*, the last being the most delicate and important organ of all.

5. When a terminal end artery is ligated or plugged or occluded in *any* way, the blood supply and nutrition of that part of the wedge-shaped area is cut off, and the function of it is impaired or *destroyed*, and an infarct is produced. Conversely, terminal arteries are found wherever infarcts are found.

Infarcts may be anemic or hemorrhagic, sterile or infected.

6. An embolus is *any* foreign body of *any* kind, animate or inanimate, suspended in and floating free in the blood stream and in *any* blood vessel. (Therefore it may be any stage of a parasite.)

When an embolus reaches an artery or arteriole smaller than itself, it completely or incompletely occludes and plugs that artery. Its presence may irritate the surrounding tunica intima and complete the occlusion by thrombus formation. The degree of damage depends, first, upon the kind and importance of the tissue supplied by the artery, and, second, upon whether the embolus was sterile or infected with pathogenic organisms.

Plugging an inosculating or anastomosing artery is of little consequence, as its companion arteries soon compensate for its loss of function. But if a *terminal* artery is plugged, impaired nutrition and function and ultimate destruction rapidly occur.

If a terminal artery of the spleen, kidney, or lungs is plugged, it is also comparatively inconsequential, for an animal can live after the spleen has been removed, and it can get along with less than one kidney, and with less than one lung. Parts of the brain, and particularly the cerebrum, have been congenitally absent, or may have been extirpated surgically, or destroyed pathologically, and the person still live.

But there are certain parts of the brain, particularly the medulla, supplied from the basilar artery by *terminal* arteries, emboli and plugging of which produce sudden, serious, profound disturbances of wide extent and variations, yet symptomatically uniform within certain limits.

Sterile emboli mechanically injure—but if they are in addition also infected, the degree of damage is much greater when pathogenic or even saprophytic bacteria are brought to the injured area. Nature's forces are impaired.

Many surgeons prior to an operation give their patient a pre-operative bacterin treatment, so as to fortify and help Nature to help evercome a possible infection; therefore in danger of a possible mechanical injury due to emboli and infection, Bacterins are positively indicated.

7. Human researches record the symptoms of brain embolism in the medulla as including the following:

a) Inability to swallow, ninth cranial.
b) Impaired speech, twelfth cranial.
c) Grinding teeth, fifth unopposed by seventh.
d) Paralysis of facial muscles, seventh cranial.
e) Dizziness and impaired hearing, eighth cranial.
f) Irregular pulse, cardiac, vagus, and vasomotor centers.
g) Retention of urine.
h) Hemiplegia and tendency to fall in one direction or to go in a circle.

The last may follow emboli farther up in cortex and motor areas of the cerebrum and cerebellum.

Helminthological Facts

1. Zoologically, worms and insects are closely related, differing mainly in insects having articulated limbs, while the vermes have none.

Certain insects are known to be the hosts and the carriers and the necessary factors in the causation of certain diseases.

Worms are divided into platyhelminthes or flat worms, and nemathelminthes or round worms. The former are flattened dorsoventrally, are hermaphroditic, having both sexes in the same imdividual, and they have *no digestive tract.* The food passing through their integument is probably as sterile as the food passing through our intestinal mucosa into the sub-mucosa for absorption.

Round worms are cylindrical—they have separate sexes, therefore males and females, but, above all, *they have a distinct digestive tract.* Their digestive tracts probably contain a bacterial and protozoal flora as varied as that of the intestinal tract of the animal they inhabit.

2. Nematodes or round worms are divided into five families, three of which, the filaridæ, ascaridæ, and oxyuridæ are *not* blood suckers in the adult stage, and whose larvæ *do not* burrow out from the intestines into the tissues, and are therefore comparatively harmless.

The other two families, the strongylidæ and the trichotrachelidæ, *are* blood suckers when adult, and their larvæ *do* migrate from the intestines and *do burrow* into the various tissues and current vessels, and are thus damaging and dangerous. In my estimation these parasites are much more damaging and injurious and devastating than has ever been suspected, and in ways that have never been thought of.

3. The strongylidæ family includes the famous hookworm of the South and the tropics and only recently recognized as destructive—it includes also the gape worm of chickens—the strongylus paradoxus of hogs—the hookworm of the dog—the stomach or wire worm of the sheep and ox—and the strongylus armatus and sclerostoma tetracanthus of the horse.

4. In each of the above hosts there are one or more imcompletely understood diseases, all fundamentally alike, and all nervous in character.

In man there is cerebrospinal meningitis, infantile paralysis, pellagra, together with certain forms of insanity, epilepsy, blindness, loss of speech, loss of hearing, apoplexy, etc., and "infectious anemia."

In chickens there is apoplectiform septicemia and limber neck—in hogs there is hog cholera, swine plague and paraplegia—in dogs there is rabies of the acute violent and dumb types—in cattle there is socalled corn-stalk disease.

In horses there is cerebrospinal meningitis, cerebritis, leuko-encephalitis, blind-staggers, stomach staggers, forage poisoning, "mold" poisoning, smelter-fumes poisoning, loco disease, Bornas disease, some forms of influenza, and a host of others. Besides these, there is swamp fever, infectious anemia, and the anemia caused by the sucking blood of the adult worm.

Helminths belonging to the same zoological family must be quite similar within certain limits in their biological features. Facts have been worked out concerning some that have not been in others. It is fair to assume similarities because of the family relationship.

Males and females copulate. Thousands of eggs are produced. The eggs are usually passed out with the feces after being passed out by the female into the intestinal tract of the host. They usually do not hatch until they reach the exterior.

5. According to the 1908 B. A. I. Report, page 270, the adult females of the Strongylus contortus *do* produce thousands of microscopic eggs that pass out unhatched with the feces of sheep. In a few hours even, or days or weeks, *depending upon temperature and moisture*, the eggs hatch into tiny embryos, and undergo development. Drying and freezing will kill both eggs and embryos. The embryos (like those of liver flukes) crawl up moist grass blades when the humidity is sufficient and the temperature above 40 degrees Fahrenheit and become encysted on the grass. Conditions known to favor "mold" formation are also just as positively optimum for the out-of-the-host or "out-door" stage of helminths.

6. The cysts are taken in on the grass blades or "forage" by sheep.

7. More water than the highest degree of humidity will destroy the egg stage of the human hookworm. Rain must therefore be detrimental.

8. The larva of the human hookworm is said to pass through the soles of the feet, then enter the circulation (if so they positively become emboli) and reach the lung (may they not reach other organs) and are coughed up from the lungs and swallowed, and in this way reach the intestines. Personally, I do not believe that is correct. I believe contaminated vegetation or water is the channel and vehicle.

9. It is classical knowledge that one stage of the liver fluke passes through the body of the snail as an intermediate host. One stage of the echinorynchus gigas passes through the grub worm. The earth worm is said to be the intermediate host of the gape worm (Syngamus trachealis).

10. The trichina spiralis, belonging to the trichotrachelidæ family passes no part of its life cycle outside of the animal body or animal tissues. The encysted larvæ are taken into the intestinal tract where they rapidly develop into adult males and females which immediately copulate. The male dies. The females stick their heads in the crypts of Lieberkuhn, suck blood, and in a short time produce about 1500 living embryos or larvæ.

There are no eggs passed out by the adult female trichinæ or with the feces of the host. The larvæ immediately burrow through the mucosa into the submucosa and sub-serosa and enter the lacteals and veins.

11. A large number of parasites, whether brought forth as living young from their mothers into the intestinal tract of the host, or whether taken in in the form of eggs or other form of encystment, and then become larvæ or embryos, do burrow through the mucosa into the sub-mucosa and sub-serosa and thence into the lacteals and circulation.

This is true of the trichina spiralis, the echinococcus, the cysticercus cellulosæ, the cysticercus bovis, coenurus cerebralis, the gape worm, the esphagostoma columbiana, the strongylus armatus, and sclerostoma tetracanthus, and the human hookworm.

12. Sometimes the proglottides or ripe segments or eggs of the tænia solium and tænia saginata of man, may, by retrograde peristalsis, pass backwards from the large intestines back into the small intestines and even back to the stomach. The intestinal and gastric juices then dissolve the shell and hatch the embryo in exactly the same way the hog or ox would have done. The embryos then pass into the submucosa of man and by the circulation, may reach any part of the body, particularly the brain, and encyst in the larval form. It is auto-infection.

Interposed Anatomical Facts

The small intestines of the horse are about seventy-two feet in length, and the large about twenty-five feet. You know this, but stop and realize it in connection with this problem. The mesentery that suspends the intestines to the sub-lumbar region is a *huge* triangle, having a base between seventy and one hundred feet in length, and an apex around the tough thick walled great anterior mesenteric artery. More important yet to consider in this important apex, is the thin-walled portal vein formed by the union of all the veins coming from the hundred feet of intestines at the base of the triangle. There is also the extremely thin walled receptaculum chyli formed mainly by the union of the myriads of lacteals that come from this same hundred feet at the base of the tri-

angle. There is also the important semi-lunar ganglion or *abdominal brain*, containing most of the cell-bodies of the myriads of sympathetic sensory nerves coming from the intestinal mucosa, and also most of the cell-bodies of the myriads of motor, secretory, and trophic fibers of the solar plexus going to the intestines to control peristalsis, secretion, and nutrition. The thin-walled posterior vena cava is also placed at this important apex. All literature confines itself to the less important thick-walled anterior mesenteric artery, and very little attention is called to the more important other centripetal structures.

The two peritoneal layers of the mesentery are united very loosely by loose, soft, easily-penetrable areolar tissue. The two layers are also quite widely separated at the line where they envelop and suspend the, or are attached to the, concave side of the bowel's upper surface.

This is therefore an extremely favorable place for the vermicular burrowing of the larvae and embryos of parasites, and they may quickly reach the important apex. They may also enter the walls or the lumen itself of the arteries or the centripetal veins and lacteals. The blood in the mesenteric arteries is centrifugal and goes *to* the intestines.

The blood in the mesenteric veins and the lymph in the lacteals is centripetal and going *away* from the intestines *to* the apex in the sub-lumbar region. The receptaculum chyli, by means of the thoracic duct empties directly into the lower part of the jugular vein and anterior vena cava, and no lymph nodes are interposed. The anterior and posterior vena cavae empty directly into the right auricle of the heart. The blood of the portal vein must pass through the capillaries of the liver before it empties into the posterior vena cava. From the right side of the heart all this material must pass through the capillaries of the lungs. The lung has terminal arteries, but elastic ones.

The blood is carried back to the heart from the lungs. The blood and whatever it may contain is sent by the heart to *any* part of the body.

The blood of the vena cava and the lymph of the receptaculum chyli, together with whatever emboli they may contain, pass through only *one* set of capillaries, namely of the elastic lungs, before they reach the common aorta or beginning of the great systemic circulation. The blood of the portal circulation having to pass through the capillaries of the liver in addition.

The venous blood from the entire nasal chamber, and all of the venous blood from the hard palate, and from the soft palate, and part of that from the tongue, and part from the face, and all that from the eye and eye-ball *must* pass through the *cranial* cavity by means of the ophthalmic vein at the alveolar tuberosity and orbital hiatus. The ophthalmic vein enters the ophthalmic foramen into the cranial cavity and joins the cavernous and sub-sphenoidal venous sinuses. Therefore inflammation of the brain and meninges, bringing about increased fluid and exudation, results in pressure upon this vein, and passive congestion follows in the tissues of the drained areas.

Additional Helminthological Facts

13. The immature form of the Strongylus armatus is very commonly found in the intestinal tract of the horse. Between the egg stage and the adult stage it is self-evident that there is a time when it is the exact size of the so-called adult stage of a parasite that has been described and called the "Sclerostoma tetracanthum."

There is some question as to whether such a parasite actually exists, and that the larval form of the Strongylus armatus, has been erroneously thought to be and described as a distinct species.

There is absolutely no question that because the larval stage of the Strongylus armatus is at some time and stage exactly equal in size and appearance to the so-called or described Sclerostoma tetracanthum, that this mistake has been often and repeatedly and unconsciously made by practitioners and others, "experts" sometimes.

Even if there are, as recently been published, seventeen or more species of these found in the intestines of the horse, and their larval habits the same, as given below, the results would be the same.

14. The Strongylus armatus (and the tetracanthus as well) *does* enter the submucosa and subserosa. It also *does* burrow into the tough wall of the anterior mesenteric artery and other arteries. It also passes through the walls of the artery and projects one end free into the lumen. Does it ever let loose and get into the blood stream—yes—most emphatically, *yes.*

15. Neuman's 1892 edition of Animal Parasites records the larvae of the Strongylus armatus as having been found in the following places—the intestinal lumen—the intestinal walls—the mesenteric, celiac axis—spermatic—and renal arteries and the aorta—in the peritoneal cavity—in the muscular and connective tissues—in the liver—in the lungs—in the kidneys—in the scrotal sac—in the cryptorchid testicle—and *in the brain.* The cases he records where it was found in the brain showed symptoms exactly similar to those shown in the Kansas horse plague. No one can afford to neglect to read that paragraph on page 727.

I have seen in a dissection subject an aneurism at the termination of the common carotid artery, and the internal carotid completely occluded. These are positive evidences and proof of the wandering character of strongyles. The commonness of the parasite in the intestines and mesenteric arteries is no proof against its occasional presence and seriousness in the brain.

Dr. James Law says on Page 5, Volume V:

"Given a real parasite with injurious qualities, the aggregation of a large number of the animals forming its natural host, and *an environment especially favorable to its preservation* and propogation—we must be prepared to meet with an *extensive dangerous and destructive outbreak of which no previous counterpart is known.* No previous immunity, and no history of this parasite showing an *apparent harmlessness* must be allowed to *blind us.*"

Kansas Epidemiological Observation Facts

1. In the infested territory there *was* a period of very hot, muggy, humid weather favorable to crops of all kinds, and particularly to "molds" and the atmospheric egg and embryonic stage of parasitic worms.

2. An extraordinarily large number and grand total of the "infestatious" stage survived in the pastures—(*on* the grass? forage? or *in* the water?)

3. A correspondingly greater grand total were ingested.

4. It followed that an extraordinarily large number of the *larvae* of the strongylus armatus were found in the intestinal tracts of both well and sick horses in the infested districts.

5. A correspondingly greater grand total naturally entered the submucosa and subserosa.

6. A correspondingly greater number and grand total entered the tough thick anterior mesenteric artery walls.

7. A correspondingly greater grand total could and no doubt *did* enter the lumen of the thin-walled centripetal veins and lacteals.

8. The larvae of the strongylus armatus *were positively found* in the withdrawn blood by several investigators.

9. A correspondingly greater increase in the grand total of larvae in the blood streams of the horses in the infested districts means the correspondingly greater increase of the grand total of *emboli.*

10. A correspondingly greater grand total reached the *terminal* or end-arteries of the lungs and kidneys, impairing correspondingly greater numbers of small areas of the lungs and kidneys. (The pneumonias and nephritides were common as were influenzal symptoms also).

11. The increased grand total of these larvae in the blood and in the lungs increased the opportunities for a greater grand total, vermicularly working their way through and stretching the elastic capillaries of the lungs into the veins and thence to the common aorta*.

12. Correspondingly greater grand totals in the common aortae *increase the opportunities* for one or more *larval emboli to reach the cranial cavity* by any one of the seventeen blood vessels entering it.

13. All of the horses affected in the Kansas plague showed positive symptoms of *brain embolism.*

*These larvae may more readily pass from the arteries to the veins in the lungs by burrowing through the delicate vessel walls and the intervening tissue, and there is direct evidence that this occurs.—Ed.

14. Many of the horses showed symptoms of pneumonia and nephritis.

15. A diplococcus or streptococcus or pasteurella or pneumococcus or septicemic organism or micrococcus was found in the cerebrospinal fluid and urine and other fluids in some of the cases by some of the investigators.

16. The intestinal tract of the horse host and therefore of the intestinal tract of the adult and larval strongylus is *not* sterile, but has a flora.

17. Combine neurological fact No. 6, helminthological fact No. 1, observation fact Nos. 12, 13, 14, 15, and 16.

18. In most cases there *was* paralysis of the intestines and no peristalsis. Could the larvae have burrowed into the semilunar ganglia of the solar plexus, and irritating the nerve cell bodies, impaired their function?

19. In many cases there were symptoms of compression of the ophthalmic vein, and congestion of the eyes, mouth and face. Anatomical fact No. 3, influenzal symptoms.

20. There was inability to swallow, and paralysis of the deglutition center. (See neurological fact No. 7.)

21. There was often paralysis of the facial muscles, seventh cranial.

22. There *was* grinding of the teeth. The fifth nerve, closing the jaw, was unopposed by the paralysed seventh that opens the jaws.

23. Animals turned or leaned to one side or forward or backward, showing evidence of paralysis of muscle groups—hemiplegia.

24. Hundreds of lines of treatment were adopted and many kinds were advocated in the public press.

25. Very prominent among the lines of treatment advocated was vermicidal, vermifugal, and purgative and laxative treatment.

26. The first two official reports given out from the Live-stock commissioners' office advocated vermifuges. This was copied by hundreds of papers. The Topeka Capital, Mail and Breeze, and Kansas Farmer advocated ounce-doses of aloes. Copperas was also advocated.

27. As a result of the above, thousands of doses of vermifuges and purgatives were administered to well horses.

28. As a result of the above, millions of the larvae of the strongylus armatus were removed from the intestinal tracts of the horses in the infested district, and the dangerous grand total decreased.

29. As an additional result of the doses of vermifuges, all the good ones being also good purgatives, the total quantity of ingested poison was reduced, whether it was germs, worms, chemicals, or molds.

30. Thousands of horses were removed from the pastures during the right period, and thus reduced the quantity of poison ingested. There is no proof that this removal was not from the worms as well as other poisons.

31. The infected territory was blessed with a good general rain and drop in temperature. See helminthological fact No. 7.

32. No excessively and prolonged humid atmosphere followed.

33. The disease abated and is practically gone now. Oct-1912

Unanswered Questions to be Solved

1. Has the complete life history of the Strongylus armatus been thoroughly and accurately worked out or merely theorized out?

2. Do the strongylus eggs ever hatch in the intestinal tract of host?

3. At what time of the year are the greatest number of eggs passed out?

4. What are the *optimum* soil, atmospheric, temperature, moisture, and forage conditions most favorable to the preservation and perpetuation of the greatest numbers of the Strongylus armatus?

5. Have the Weather Bureau records been consulted and considered and compared, prior and during outbreaks of cerebrospinal meningitis and the other epizootics of the horse and other animals?

6. Does the Strongylus armatus require an intermediate host?

7. If an intermediate host is required, what *is* it, and what are the optimum conditions favorable to it?

8. Are the eggs the infestation stage for other horses or for the same horse immediately after being passed?

9. Do the eggs hatch out of doors—in the manure, soil, or water?

10. How *soon* after being passed out do the eggs hatch and the worm reach the infestation stage?

11. When they *do* reach the infestation stage, is it *in* the water, *on* the grass, or forage or where?

12. Is the infestation stage in the pasture microscopic or macroscopic?

13. How soon after being ingested in the infestation stage by the horses are they hatched or developed to the pathogenic stage?

14. How large is the hatched embryo or larva?

15. How large is the embryo or larva when it is ready to and first burrows through the mucosa?

16. What is the anatomical and physiological character of its burrowing apparatus and its possibilities?

17. How large are the embryos or larvae when they become *emboli*, or may they vary?

18. Being elongated and animate, when they reach the capillaries, can they elongate and attenuate themselves, and stretch the capillaries and pass beyond into the larger venules, particularly in the lungs?

19. Can they do this in the terminal arteries of the brain, and soon enough before destruction of tissue, and recovery occur?

20. When caught in a capillary, can they burrow out through the wall into the tissues, and thence into a larger vessel?

21. When caught in an artery, can the larvae be attacked and destroyed by leucocytes?

22. Will coiled up larvae occlude larger vessels than when straight?

23. Can the larvae carry bacteria, protozoa, etc., from the intestines of the horse to any part of the body by means of its own digestive tract?

24. Can the adult female of the Strongylus armatus be oviparous in the summer and viviparous like the trichina spiralis and other vermes in the winter? This based on atavistic principles of the evolution of family.

25. Would not such larvae, hatched in the intestinal tract, burrow into the tissues like the trichina spiralis and summer strongyle?

26. When horses are fed poor, innutritious food, or moldy corn and stocks in the winter, can retrograde peristalsis force the eggs back into the intestines or stomach in immense numbers, and then hatch into larvae?

27. Or can the adult female, ripe and ready to hatch her eggs, be passed back into the stomach and intestines, and then hatching, bring about auto-infection with larvae or eggs in the dead of winter?

28. Does poor nutritious food and constipation force the female to migrate for better food back into the more anterior parts of the digestive tract? See helminthological fact No. 12.

29. Were the general rains all over Kansas and the infested territory about September 18th, destructive to the eggs or larvae and the infestation stage; does this account for the subsidence of the disease.?

30. Is anyone in a position to say under oath based on sufficient investigation, that the removal of the horses from the pastures did not remove them from the infestation stage from a probable positive infestation stage of a destructive worm, as well as from a "possible" mold, chemical, or bacterial posion?

31. Until the specific destructive agent and its method of pathogenicity has been positively proven, can any one say it was not the Strongylus armatus?

32. Is there anyone in a position to say that the opinion and advice regarding worms and their methods of elimination and prevention, that was published broadcast, and that was followed by the administration of thousands of doses of effective worm medicines that were also good purges for well horses was not the *greatest* of *all* the factors in reducing the deaths?

33. Can anyone deny that such advice and its practice did remove and decrease the total quantity of poison, whether, chemical, mold or germ?

34. Was the proper technic carried out by any one to determine whether the larvae had become larvae and become encephalic emboli?

No—positively—no, so far as I know.

35. *What is the proper technic that ought to be adopted to determine the presence or absence of encephalic larval emboli?*

Principal Object of This Paper

By the time I had evolved my theory and by reading had confirmed it, and had worked up a technic that might prove it, it was too late, and conditions arose that made it impossible for me to do so.

In the past we have *overlooked* this etiological theory because it did not exist as a theory—but any veterinarian or scientist in the public service anywhere, who reads this and the literature upon brain embolism of the human, will probably not *ignore* it in the future until disproved.

Should the disease ever become epizootic or enzootic anywhere, again, I trust those who have the inclination, time, funds, and liberty to do so, will make observations and conduct proper investigations to determine the positive facts.

I suggest that first of all, the blood of the moribund be drawn into a sodium fluoride or sodium citrate or potassium oxalate solution to prevent clotting and enmeshing the larvae, and then that it be strained through cloth to determine the possible presence of larvae in the free blood at that particular moment, as circumstantial evidence.

Secondly—After bleeding, expose both common carotid arteries immediately after death, and inject toward the head a colored fine injection mass mixed with formaldyhyde and glycerine.

Then remove the brain very carefully, by removing the *floor* first and thus preserve all the vessels that enter at the base.

Never remove the roof first, and then pull out the brain, rupturing the vessels passing through the foramina at the base. This suggests an additional question—how many brains were removed, and of these was a single one removed by taking the base off first?

It might be well to precede the injection with a washing out of all the cephalic vessels with a normal salt solution.

Afterwards follow each artery and twig until a place or places are found where the injection material stopped and did not go beyond.

Examine this point carefully in the *interior* of the vessels for an embolus.

I suggest that a very careful clinical study, note and record be made of the symptoms before death just exactly as an expert human neurologist would do. They can locate the exact spot of most brain lesions before death. If my theory is correct we may often be able to prophesy as to the location of the brain lesion from the symptoms.

Experience may suggest improvements in the technic.

There is an opportunity here for a great work for the horse and humanity, that may lead to lines of work that may solve the mysteries investigators admit surround the sources of infection and the methods of transmission of human cerebro-spinal meningitis, infantile paralysis—[Recent investigations seem to incriminate the stable fly (stomoxys calcitrans) as the carrier of this disease.—ED.]—pellagra, rabies, and some other diseases, and thus be the means of saving thousands of human lives.

Whether I am right or wrong, I maintain this is sufficient defense for this article.

BIBLIOGRAPHY

1. Any reliable authentic pathology discussing emboli, and infarcts, and particularly these conditions of the brain.
2. Reference Handbook of the Medical Sciences Volume II, The Brain, pages 136-147 and 766-779.
3. Neumann's Parasites (1892 edition) pages 621-771-768-704-675-656-(622-631) 611-547-500-(403-410).
4. Neumann's Parasites (1912 edition) 342-426-465-466-507-(526-531)-551-589-*607* particularly—643-645.
5. U. S. Bureau Animal Ind. Reports, 1901, pages 183-219 and 1908, pages 270-239-247-220.
6. B. A. I. Bulletin No. 36, page 9.
7. Veterinary Medicine—Law, Volume V, pages 4 and 5, and also page 273, and Volume II, pages 215, line 4.
8. "The Abdominal Brain," by Byron Robinson.
9. Any anatomy of the intestines, lacteals, and receptaculum chyli—the portal vein—the posterior vena cava—and mesenteric arteries and the circulation of the brain.

Author Dr. Burton R. Rogers
VETERINARIAN

Continued Page 315 — June 1913

AMERICAN JOURNAL of VETERINARY MEDICINE
THERAPEUTICS, SURGERY and SANITARY SCIENCE
Two Dollars a Year
Single Copy Twenty Five Cts.

GUARANTEED PAID CIRCULATION OVER 7,000 MONTHLY

Address all communications to D. M. CAMPBELL, Editor, 1761 Lawrence Avenue, Chicago

Subscriptions from the United Kingdom should be sent to our London Office in care of Messrs. Bailliere Tindal & Cox, 8, Henrietta Street, Covent Garden, London, England.

About Your Renewal

A GREAT many subscriptions to VETERINARY MEDICINE expire with this issue. Is yours among the number? Do not wait until January first to send in your renewal. Wrappers for the January issue will be addressed by December 20th at latest. If your renewal is not received before that date your next copy of VETERINARY MEDICINE will be delayed in reaching you and we shall be put to unnecessary trouble and some extra expense in making a second mailing. Publishers must send magazines to the post office, not drop in the street boxes, for mailing and VETERINARY MEDICINE is printed eight miles from the Chicago post office.

Again the number of extra copies may not be sufficient to supply all the delayed renewals and the large number of new subscribers that are always added to the list at the beginning of the year. Last January we ran short several hundred owing to an unexpected increase in the number of new subscriptions. A prompt renewal will avoid a break in your files.

Beginning with the January, 1913, issue, the size of VETERINARY MEDICINE *will be increased sixteen pages*. This will give the subscribers two hundred additional pages of reading matter during the year. Two hundred pages at no additional cost, you don't want to miss this.

The Price of the Trade Mark on Pharmaceutical Preparations

IN the medical press, at the present time, there is much discussion of the extortionate prices charged for many German proprietary medicinal preparations in wide use among physicians of this country. The subject is one upon which veterinarians should inform themselves, the price of drugs is of even more importance to us than it is to doctors of human medicine on account of the much larger quantities of medicines which our patients require.

Discussing the comparative prices of trade-marked proprietaries and the same products under their chemical names the *Pharmaceutical Era*, New York, in the October issue, says:

"It is interesting reading for the American pharmacist, and may explain one reason for the activity of Mr. Metz and his associates in their "educational campaign to save the lives of the American people." The prices are from current quotations:

TRADE-MARK NAMES	PRICE	CHEMICAL NAMES	PRICE
Aspirin	$4.40 lb.	Acetylsalicylic acid	$0.65 lb.
Veronal	21.00 oz.	Diethylbarbituric acid	5.76 oz.
Heroin	8.80 "	Diacetyl-morphine	6.45 oz.
Aristol	1.80 "	Thymol iodide	.36 "
Sulphonal	1.35 "	Sulphonmethane	.28 "
Trional	1.50 "	Sulphonethylmethane	.38 "
Duotol	1.50 "	Guaiacol carbonate	.26 "
Urotropin	.60 "	Hexamethylenamine	.04 "
Creosotal	.65 "	Creosote carbonate	.20 "
Phenacetin	.33 "	Acetphenetidin	.13 "

"The first two named on the list are still protected by product patents in the United States, hence the prices quoted for the two under the chemical name are taken from the English lists, where there is no product patent production.

"Other such chemicals thus affected are: Salipyrin (antipyrin salicylate), europhen (diisocresol iodide), benzosal (guaiacol benzoate), lactophenin (lactyl paraphenetidin), salophen (acetylparamidophenol salicylate), xeroform (bismuth tribromphenolate).

"Is it not about time for the American physician and the American pharmacist to get together in a commercial pact with the "Made-in-America" slogan, instead of allowing a wholesale attack upon the ethics of American druggists and manufacturers by German houses and their agents, who use the plea of protecting American lives to bolster up German incomes?

"Let the druggists impress upon physicians the necessity of prescribing such chemical medicaments under their chemical names rather than by trade names, and the first step toward ending extortion and the methods which have recently been employed to further it will have been taken—and not in vain."

VETERINARY ADVERTISING IN FARM PAPERS, UNRELIABLE

Mr. P. V. Collins, editor of the *Northwestern Agriculturist* is one of the farm-paper editors who some years ago eliminated medical advertising from his columns. He was also one of the first to question the advertising of proprietary preparations intended for the treatment of animals, having stated to the writer some months ago that he would welcome the opportunity of placing his veterinary advertisng before a competent committee or board for their criticism and that he would eliminate all that is misleading, unethical or objectionable for any valid reason.

At that time there was no authority or council of that kind to pass on such advertising but as mentioned in the report of the Indianapolis A. V. M. A. meeting in the October issue, at our own solicitation, the nucleus of such a council was formed by the appointment of a committee of the Association on veterinary advertising. Evidently, however, this committee has not yet proffered its service to the *Northwestern Agriculturist*, as the following would indicate.

During the recent campaign Mr. Collins was a candidate for governor in his state, on the Progressive ticket. During the latter weeks of the campaign the *Northwestern Agriculturist* with other farm papers was offered full-page advertisements from the Republican National Committee. These advertisements he accepted but specifically said in his editorial columns that he didn't "guarantee" the advertisement. He stated his position as follows:

"We desire to state, distinctly, that this is regular advertising space, and that we suspend our 'guaranty of the honesty of all advertising statements that appear in our advertising columns,' so far as concerns political advertising. Advertising intended to help the G. O. P. elephant may properly be classed as 'veterinary,' anyhow, and *we never guarantee veterinary ads*, but permit the readers to judge their claims as they see fit.

"We are in no way responsible for any statements made in this Republican advertising space."

This is of interest at this time and to veterinary readers only because it brings out so forcibly the fact that the editors of farm papers realize that much of the veterinary advertising which they carry is what may be classed as "fake" or fraudulent, but being unable to determine which is legitimate and which is otherwise, and being unwilling to refuse all of it they are compelled to accept pretty much everything in this class that is offered to them.

When the veterinary profession will look after its own interests in this matter to the extent that the medical profession already has done and select a competent body and provide them with sufficient funds to enable them to test and otherwise determine what advertising of veterinary proprietaries is honest and which is not, the farm papers can be speedily rid of the objectionable products, to the very great

benefit of the agricultural interests of the country, who through the fraudulent advertising are now swindled out of hundreds of thousands of dollars annually.

A man in a position to know, recently stated to the writer that during 1912 $55,000 was spent for advertising "Sal-Vet" in farm papers. Probably an equal amount was spent on "Merry War Lye," "Reducine," and a number of others. Will the committee on Veterinary Advertising of the A. V. M. A. state that they think that the farmers of this country received anything like $55,000 worth of benefit, let alone the additional amount that the sales of these products must have been to justify the expenditure of this amount for advertising, from any of these products.

STERILITY IN COWS

The silver anniversary meeting of the Iowa Veterinary Medical Association, held at Ames, November 12, 13, and 14 was a success in every way. The program was more than satisfactory and the attendance large. Two hundred and twenty-six members and friends attended the complimentary banquet given the Association by the faculty of the Iowa State College and the citizens of Ames.

The most valuable single feature of the meeting was undoubtedly the lecture by Professor W. L. Williams of Cornell University on "Sterility in Cows." Professor Williams used several hundred lantern slides in illustrating his lecture, which occupied practically all of the afternoon session of the second day. The subject discussed is of immense importance to Iowa veterinarians and the lecture was received with the closest attention and the greatest satisfaction. Doctor Williams said:

Sterility of cattle is an old subject that has recently assumed great importance to the agricultural interests of this country. Formerly the feeding and breeding value of animals did not differ greatly and sterility was of little moment, since if a cow could not be used for breeding there was little loss in putting her into the feed lot. But the increase in price of dairy and beef cattle and the increased demand for dairy products has resulted in a great improvement in the various breeds until in the highly pedigreed animals there is now a wide difference in the feeding and breeding values. Among these, sterility in cows occasions a loss, perhaps averaging between five and ten percent of the total annual production of pure bred animals.

Sterility in cows was formerly scattered but with the intensive breeding that has been practised in many places it has now reached the proportions of an enzootic in some localities. There are highly bred herds in California where the annual loss from this factor alone reaches fifty percent and elsewhere herds may often be found where twenty-five percent of the animals are sterile. In herds where the cows are worth $500 a head and up, this is a very serious matter. In a herd recently investigated in my own state, where the cows probably average $800 in value, twelve percent were sent to the butcher without even having produced a living calf.

Sterility may be congenital from irremediable malformations, with this we are not concerned. It may also result from acute illness, from improper feeding, starvation and the like, but I shall confine this discussion to sterility due to disease of the genital organs and endeavor to give you a bird's-eye view, as it were, of the effects of the disease of these organs.

In the slides shown of the ovaries of sterile animals, attention is called particularly to the variation in appearance of the corpus luteum. On each slide a normal, healthy ovary is shown containing the corpus luteum of pregnancy for comparison. In pregnant animals, with healthy genital organs the corpus luteum of pregnancy is remarkably similar. Any serious disease of the ovary, the uterus or the vagina or of the corpus luteum itself, produces a marked change in its appearance.

The healthy corpus luteum is an ovoid body about three-eighths of an inch in diameter and as the name indicates is yellow in color. The corpus luteum of the nonpregnant animal, what we may term, the corpus luteum of menstruation is smaller and brown or reddish brown in color.

Cystic ovaries are a prolific cause of sterility in cows. They are nearly all

due to cystic corpora lutea. Cystic ovaries usually have a soft, dome-like apex, a projection of the cystic corpus luteum that may be determined by a rectal examination. Recovery largely follows manipulation of these ovaries through the rectum and a squeezing out or rupture of the cystic corpus luteum.

The cystic degeneration of the corpus luteum is usually predetermined by some disease and nearly always results in abortion and subsequent failure to conceive. After manipulation and the proper use of disinfectants on the other genital organs eighty percent of these cases recover and the animals breed successfully, if the other genital organs are in a healthy condition.

Nymphomania is the rule where these cysts are two to four inches in diameter. Where the cysts are less than two inches in diameter ordinarily there is no estrum and where the cysts are four or more inches in diameter, and occasionally cysts even eight inches in diameter are found, the ovarian tissue has been destroyed by pressure of the cyst and the cyst is without effect on the disposition of the animal. If the other ovary is healthy the periods of estrum may be regular, if it too is diseased, nymphomania may be present.

Estrum during pregnancy is usually due to an abscess in the ovary, that is to a pyogenic infection of the corpus luteum and to pyosalpinx. This condition is rare and incurable but it is of great importance that it be diagnosed, as it may be, by rectal examination, because these abscesses must not be ruptured into the peritoneal cavity.

Neoplasms of the ovary are very rare, and of these tumors, sarcomata is the most common.

Abscesses in the body of the uterus from "opening up" are common. In these cases the corpus luteum tends to sink into the body of the ovary and become central. If the ovary is firmly grasped and the corpus luteum fully squeezed out, the uterus contracts, empties and disinfects itself and recovery occurs. It may be said, without any fear of contradiction, that "opening up" the normal uterus is unnecessary, and that it is always dangerous when attempted by the unskilled.

Venereal tuberculosis is much commoner than most veterinarians suppose, both in bulls and cows and careful palpitation of the genital organs of both bulls and cows should be practised by all veterinarians until they familiarize themselves with the normal and are able to detect disease and thus render valuable service.

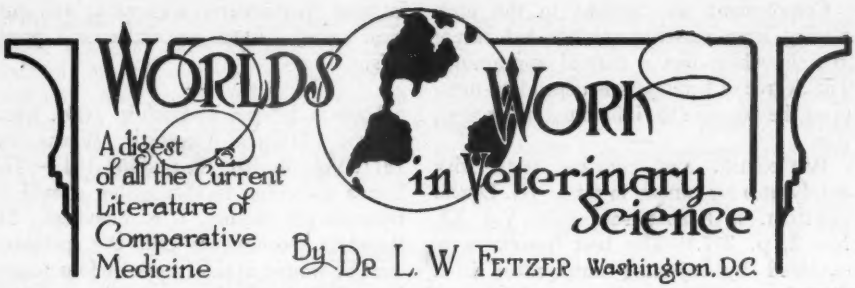
When an examination reveals a nodular condition the animal should be isolated as probably tuberculosis, irrespective of what the tuberculin test may indicate and neither male nor female should be allowed to breed to healthy animals.

ARMY VETERINARY BILL REVIVED

As most of our readers know the Army Veterinary Legislation, which was so earnestly striven for at the last session of Congress failed of enactment, not through a lack of friends, for Dr. W. Horace Hoskins, who had this matter in charge, labored so effectively throughout the session of Congress that a majority in the House of Representatives and in the Senate were committed to its support, but through another means, that while not effective in killing it, postponed action until after Congress adjourned. The bill was one of those scheduled for consideration the last days of the session and when it came before the House, Congressman Victor Murdock of Kansas, raised the question of no quorum and it could not be considered.

At the Indianapolis meeting of the A. V. M. A., Doctor Hoskins was continued as chairman of the committee on Army Veterinary Legislation, in recognition of the effective work he had done on this committee and there is every assurance that the matter will be pushed during the present short session of Congress. Whether or not, a vote can be secured on it, is problematical.

It will be unfortunate, indeed, should the Army Veterinary Bill fail to pass at this session of Congress. In the sixty-third Congress, which will be convened in special session soon after March 4th, there are more than one hundred new members and the missionary work for the Army Veterinary Bill will have to be done pretty much all over again.


WORLDS WORK
in Veterinary Science
A digest of all the Current Literature of Comparative Medicine
By Dr L. W Fetzer Washington, D.C.

THE vaccination of sheep against pox with heated virus. (E. Duclox. Comp. rend. Soc. Biol., 1912. Vol. 72, No. 16, pp. 709–710.)—In some previous tests the authors showed that this virus when heated for a time (three hours) in a water bath a vaccine is obtained which will infect, only at the site of injection.

They now report further results with 590 sheep which were treated with 0.5 Cc. of the attenuated virus and seven days later infected with virulent pox virus. Five hundred and eighty-two of the animals did not show any visible reaction to the infection while seven showed a local swelling about the size of a pea and one showed a slight edema. Out of sixty animals which were held as controls but treated with the virus fifty-six showed severe pox, two slight pustulation, and two did not respond at all. The vaccine was active twenty days after heating.

—

THE theory of the cathartic action of magnesium sulphate. (J. L. Heer, Arch. int. de pharm. et de ther., Vol. 21 [1912] 321–338.)—The conclusions reached as a result of the investigation are as follows:

The addition of magnesium sulphate to starch paste does not increase to any extent the movements of the latter through a loop of isolated intestine. Isotonic and hypotonic solutions of sodium chlorid and magnesium chlorid brought into the intestinal loop in amounts of 1 Cc. had no influence upon the pendular motions in the majority of the cases. In the minority of the cases the increases in motion were due to mechanical stimulation. Hypertonic solutions of both salts accelerated the movements in most of the cases. No noticeable difference was detected between the action of the salts.

The peristaltic movements of the isolated rabbit colon were markedly stimulated by the injection of 1 Cc. physiological salt or magnesium sulphate solution, although no difference between the behavior of the two salts could be noted.

The purpose of the investigation was to review the findings of Tyrode who attributes the action of magnesium sulphate to a reflex stimulation of the mucous membrane of the intestinal tract.

—

SOME further tests with the causative agent of foot-and-mouth disease. (J. Siegel Berlin, Tierärztl. Wochenschr. 1912. Vol. 28, No. 39, pp. 713–718.)—This is a report of results obtained with eighteen bovines and which are presented in tabulated form. The animals used in the tests were either young bulls or young heifers and were obtained in establishments where no foot-and-mouth disease had existed during the past year. In addition to studying the infectiousness of the cytoryctes cocci cultivated on artificial media some further studies on the biology of this organism were made. In seventeen out of the eighteen animals infected either subcutaneously, intravenously, or by contact the classical symptoms and lesions were produced.

—

THE hemolytic test for detecting milk coming from animals suffering from mastitis. (F. Moser. Centralbl. f. Bakt. etc., I. Abt. Orig. 1912. Vol. 65, No. 4, 5, pp. 269–296.)—The hemolytic method is too technical for practical purposes.

Complement was present in the milk coming from mastitic animals but rarely in milk which had a normal appearance. The degree of hemolysis is dependent upon upon the extent of the inflammatory process.

—

IMMUNIZING and curative tests with antolysates for tumors in rats. (G. Lewin. Zeirtschr. f. Krebsforsch. 1912, Vol. XI, No. 3, p. 317.)—The best results were obtained by injecting antolysates i. e. comminuted tumors with an addition of chloroform, or toluol water, allowed to antolyse according to Blumenthals procedures. In many cases the tumors either ceased growing, became smaller in size or an absolute cure was affected.

Beard's theory considers the absence of the tryptic enzyme, the causative factor for these growths but the injection of trypsin for destructing the tumor protein has delivered negative results.

—

PROGRESSIVE and cachectic anemia in sheep. (A. Boquet. Compt. rend. Soc. Biol. 1912, Vol. 72, No. 16, pp. 716–718.)—From the blood (heart), hoof joint and pus (obtained from an abscess) of a sheep showing the symptoms of an acute icterus, a microorganism was isolated which morphologically and biologically resembled the bacilli belonging to the Preisz-Nocard pseudotuberculosis group. The bacillus was capable of elaborating a hemolysin in serum-bouillon. The disease according to the author resembles that known under the name of *el r'och* prevalent amongst sheep in Algiers.

—

THE transference of foot-and-mouth disease by blood sucking insects (Stomoxys calcitrans). (G. Terni, Zentralbl. f. Allg. Path. u Path. Anat. 1912, Vol. 23, No. 1, p. 15.)—These are the only insects which pass the winter in barns. They convey foot-and-mouth disease by sucking the blood of an infected animal during the febrile stage.

—

RELATION between the human and bovine tubercle bacillus. (G. Sims Woodhead. Lancet [London] 1912, No. 22, pp. 1451–1514.)—The bovine tubercle bacillus plays quite a rolè in producing this disease in man (particularly abdominal and surgical cases). Later researches will prove this.

—

HERNIA interna abdominis. (Dr. Blendinger. Münch. Tierärztl. Wochenchr. 1911, Vol. 55, No. 10, pp. 152–154.)—The hernia according to this author should be reduced per rectum, i. e. bloodless. He therefore recommends that the spermatic cord be wound around three or four fingers instead of one and that traction be made forward (orally). The entire operation can be facilitated if an assistant makes counter traction on the scrotum.

—

CASTOR oil Bean Poisoning. (T. Parker, Vet. Record, 1912, Vol. 24, No. 1243, p. 69).—In a barn where fifty-two hogs were kept, six pigs, three of which were sows were ill, while one sow, one boar and three small pigs were dead.

The symptoms noted were: disinclination to take food, lying down with no inclination to move, crouching under bedding, abdominal pains, ears drawn backward and an almost cold body surface. On postmortem examination some of the animals showed a hemorrhagic gastroenteritis with large blood clots, some clots even filling the lumen of the small intestine. The mesenteric lymph glands were congested, but the remainder of the organism appeared normal.

A microscopic examination of the feed showed the presence of castor oil seeds, but attempts to make young pigs feed on the suspected meal met with refusal.

The sick animals were given raw linseed oil and after a few days made an uninterrupted recovery.

—

BULBAR Paralysis as a result of feeding clover infected with the rust fungus. (District Vet. Römer. Berl. Tierärztl. Wochenschr. 1912, Vol. 28, No. 33, p. 604).—Four bovines became extremely ill after feeding on red clover infected with rust. At first the author suspected the presence of foot-and-mouth disease.

The symptoms were salivation, retarded chewing or masticating, difficult swallowing, increased temperature of the buccal mucous membrane and a stiff swinging gait. One

of the animals died of an aspiration pneumonia and two were slaughtered. The findings on autopsy were as follows: reddened subcuticular tissue, ligamentum nuchae and muscles of the neck; hemorrhages in the arachnoid; brain edematous. After changing the feed of the fourth animal it recovered.

—

THE use of antiformin in veterinary medicine. (J. Ritzer. Münch. Tierärztl. Wochenschr. 1912, Vol. 56, No. 3, p. 49–56). —This solution which is considered a solution of hypochlorite of sodium (sodium hydroxid 7.5 percent and 5.6 percent chlorin) has been used successfully as a uterine douche (one percent); in foot-and-mouth disease (disinfect stalls with three percent antiformin—milk of lime solution, shoes and hands three percent solution, hooves antiformin-bacillol ointment, washing mucous membrane of mouth one percent solution); infectious vaginal catarrh (one percent solution, antiformin ointment and capsules containing antiformin); and herpes (solution and salve). It has also been employed for wounds, fistulas, parasitic skin diseases and other purposes.

—

ORAL or intra-peritoneal use of chloral hydrate, (Wester, L'Echo Veterinaire 1911, Vol. 39, pp. 521—522.)—The best way of administering chloral hydrate is per mouth (os). Animals receive no water twenty-four hours before the administration, and only one-half of the usual ration. No food is given after this period. Horses receive 40-60 Grams (approximately 10-15 drams).

The author has abandoned the intra-peritoneal method of administering the drug.

—

ALBIN, a diamino phosphatid as an activator for tuberculin. (H. J. Bing and V. Ellerman. Oversigt over det kgl. danske Videnkabernes Selskabs Forhandlinger 1912, No. 2, Zeitschr. f. Imunitatsf. u. exp. Ther. II, Ref. 1912, Vol. 6, No. I, p. 399.)—This preparation which was obtained from egg yolks stimulates the appearance, etc., of the cutaneous reaction obtained with tuberculin.

—

THE agglutination, complement fixation, and the conjunctival tests for diagnosing glanders in horses. (H. Miessner. Centralbl. f. Bakt. etc., [I Abt. Orig.] 1912, Vol. 63, No. 4–6, pp. 482—542.)—The complement fixation or complement binding test is undoubtedly the best method for diagnosing glanders in horses. The agglutination and conjunctival tests are less reliable.

Abstracts From Foreign Publications

Translated by JULIUS A. JESSEN, D. V. M., Irwin, Iowa

SPASMS OF THE DIAPHRAGM FOLLOWING INJECTIONS OF ESERINE AND ARECOLINE.—A six-year-old brown mare, which was suffering from obstruction colic, was brought to the attention of Dr. Goldberger, Kirjanke, Germany (Berliner Tierärztl. Wochenschr., No. 37, 1912).

The animal received a subcutaneous injection of eserine-arecoline, one half grain of each, which caused an exceedingly vigorous evacuation of softened masses of feces. About thirty minutes after the injection nervous spasms of the diaphragm set in. The shocks were at times so intense as to jar the entire body, varying in degree and at a rate of from ten to fifteen times per minute. The heart beat was not increased but somewhat weakened. At the end of an hour the essentially weakened shocks were still kept up at the rate of about eight per minute. The horse received an injection of 7.5 grains of morphine whereupon the spasms discontinued within ten minutes, not to return again. It was reported well the next day.

The condition was evidently due to a reflex action, brought about by the vigorous evacuation of the alimentary canal.

MULTIPLE HEMORRHAGES IN SWINE.—Following extensive investigations in slaughterhouses Berger and Zwolle declared their opinions regarding the etiology of the multiple hemorrhages found in the muscles of hogs and due to mechanical influences (Zeitschrift für Fleisch und Milchhygiene, Vol. 22, p. 37).—They found the hemorrhages, which had caused the rejection of entire carcasses in London, in about two percent of all hogs examined; more frequently in fine built animals than in the coarser type, among the fat as well as the relatively leaner animals. The condition predominates in the diaphragm, the muscles of the belly, the loin, thigh, obturator internus, semitendinosus, semimembranous, sartorius and gracilis. Upon miscroscopic examination the hemorrhages were shown to be due to rupture of the muscles.

These hemorrhages were found only in establishments, in which preceding the sticking, the animals were knocked in the head with a hammer, never in establishments where they were handled after the American method.

Out of 600 hogs handled by the American method, not a single carcass was observed in which hemorrhage occurred, while by the other method most of them were thus affected.

AGRICULTURAL EXPERIMENT STATION BULLETINS

Some Poultry Diseases, by B. F. Kaupp, Bulletin 185, Colorado Agricultural Experiment Station, Fort Collins.

This is a very important bulletin that deals with a subject on which up-to-date information is exceedingly scarce.

The bulletin is almost wholly new and original and briefly records the results of the author's investigation in the diseases of poultry during the past five years. It has many original illustrations, including one full-page plate showing the normal, visceral anatomy of birds.

In the discussion the author first takes up the parasitic diseases, caused by external and internal parasites. The name and description of each of the common parasites infesting poultry is given, together with an illustration of it, the conditions that it produces is described and treatment both preventive and curative is given. Under the non-parasitic diseases considerable attention is given cholera, black head and white diarrhea, and it briefly mentions other diseases of the intestinal tract, ovary and oviduct, liver, respiratory organs, eyes, etc.

It is a bulletin every veterinarian should have.

Milk and Cream Contests, Bureau of Animal Industry, Circular 205, by Ernest Kelly, Dairy Division. This circular, which is somewhat similar to and is intended to replace Circular 151, deals concisely and exhaustively with a subject that is assuming more and more importance to the veterinary profession as a greater and greater number of veterinarians qualify themselves for milk and dairy inspection work.

These milk and cream contests, which were first held under the direction of the Dairy Division of the United States Bureau of Animal Industry in connection with the National Dairy Show in Chicago in 1906, have been a great factor in teaching the gospel of "clean milk," and there is no better way to arouse interest in the improvement of milk supply of any city than local competitive contests of this kind, directions for holding which are fully given in this bulletin.

The Infectiousness of Serum and Serum-Free Blood Corpuscles in Hog Cholera, by R. R. Dinwiddie, Arkansas Agricultural Experiment Station, Fayetteville. The experiment recorded in this bulletin formed the basis of the paper presented by Doctor Dinwiddie at the American Veterinary Medical Association in Indianapolis last August, and noted in our October issue.

The experiment shows that the virus of hog cholera exists in both the serum and corpuscles of the blood, but in a much greater degree in the latter, which indicates that it is of a protozoal origin rather than bacterial. The tests made were quite ingenious and the experiment as a whole is interesting and important, in that it furnishes information regarding the virus of hog cholera and probably is a forward step towards the identification of this virus.

Pointed Opinions by Readers on Live Topics of Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the thanks of the editor, the approval of the veterinary profession and the lasting gratitude of those who are aided by your suggestions.

An M. D.'s Work in the Horse Plague

MY first case of the "horse plague" was seen Aug. 15th, and it was apparently so like our corn-stalk disease and moldy-corn poison, of last winter and spring that I instituted the same treatment, and the results were also the same.

From that time until the first of September cases occurred in every direction, and I was unable to take care of more than one-half of the calls that came from them. I never gave anyone encouragement as to the outcome of my treatment. There were many who told me of their wonderful cures, such as coal oil in ear and so forth; but I never claimed to have any considerable percentage of recoveries.

I tried treating a number of cases by having the owner give them careful nursing, and as large a percentage recovered as recovered with any other treatment. The people were desperate and were willing to try anything.

The first of September I went to see Dr. J. S. Anderson of Seward, Nebraska, and also the Lincoln veterinarians and you know they were up against it also and were having an experience similar to my own. I then attended the meeting called at Lincoln, September 14th, staying in Lincoln several days during the meeting, and upon reaching home learned one of our most popular M. D.'s was insisting that the farmers use double doses of blackleg vaccine, and was pushing this treatment through a very popular auctioneer; no other two men could have accomplished what they did under the circumstances. They would tell men, wives and children they must do it. The doctor 'phoned to his brother-in-law, a banker in a nearby town telling him if he wanted a white feather in his cap to get busy and push the blackleg vaccine.

I told the people it couldn't possibly do them any good as the horse possessed a natural immunity to black leg* and I am now getting plenty of credit from those who did not use it.

This blackleg vaccine brought about a condition in the horse very similar to blackleg in the ox. Fifty percent of those that were vaccinated will die from the vaccination.

Such swellings I never have seen, when cut into gas, serum and black clotted blood escaped. I worked night and day treating these vaccinated horses; people would be at my home when I did get there to go to bed, offering me $25.00 just to go out to their place and do what I could for their animals. I never gave anyone any encouragement. I just did what looked reasonable.

The big bunch of funerals was the four five and six days after the vaccination, but some animals that showed no swelling until the fourteenth day are dying now; some, where the swelling is almost gone just fall over dead.

H. E. ASHER, D. V. S.

Red Cloud, Neb.

*This statement, although supported by good authority, is in error; the bacillus anthracis symptomatici is pathogenic for horses and mules.—ED.

A TRIP TO IRELAND

None of the commercial exhibits at the Indianapolis meeting of the American Veterinary Medical attracted more attention than the "Simplicity Operating Table" exhibited by the Veterinary Specialty Company of Grand Rapids, Michigan, and demonstrated by the president of the company, Dr. L. L. Conkey.

The fact that this table had been sold to E. Wallis Hoare, F. R. C. V. S., of Cork, Ireland, and was to be shipped direct from Indianapolis to its new owner added not a little to the interest which it aroused.

In America, Mr. Hoare is more widely known by reputation than any other

EXHIBIT OF THE VETERINARY SPECIALTY COMPANY Grand Rapids, Michigan, at the 49th Annual Meeting A. V. M. A.

veterinarian of Great Britain. He is a frequent contributor to the pages of VETERINARY MEDICINE and his articles possess great practical value, which make them always eagerly read by every subscriber; therefore it was with satisfaction that American veterinarians noted that Mr. Hoare had sent to this country for an equine operating table.

The "Simplicity" is the first American-made equine operating table to be placed in Great Britain or any other European country, although this table is acknowledged to be superior to any other make and is used in practically every state in the Union, in a number of the Canadian provinces, in the Philippine Islands and in Australia.

Because of the importance of having this table properly installed and because of the field which England and Ireland offer for the use of a table such as the "Simplicity," Doctor Conkey deemed it well to go to Cork, Ireland, to install this table and demonstrate its use, and on his return aboard the Mauretania, he writes us of his trip as follows:

"The veterinarians of Great Britain as a class are not up to the American standard in surgery. For example the old barbarous 'clamp' method of animal castration is yet in vogue among the European castrators. The old French side-line and English hopples are also in evidence.

"On the invitation of E. Wallis Hoare, F. R. C. V. S., on October 11th, we took a motor drive from Cork, Ireland, out into the rural district, among the live-stock raisers. The country through which we passed was quite rolling, showing the ancient walls of rock which divide their holdings, as well as cutting the individual farms in fields. Many of these old fences, in fact the most of them, are now covered with hedges of thorns, ivy, etc., so that the country looks like one great checkerboard, the grain, grass, bog, etc., giving the fields many different shades of color. To a stranger all this is exceedingly beautiful and intensely interesting, especially is this true when you take into consideration the ruins of old towers and castles which one observes looming up on the distant horizon, mute witnesses of the handiwork of centuries past.

"The main roads are only about twenty feet wide, fenced on either side by high stone walls or mounds of earth, on the top of which are hedges of thorn, these effectually prevent the trespassing upon the adjacent premises.

"An example of the equestrian accomplishments of the Irish ladies was furnished by an incident on this trip. We met a lady on the back of a high-spirited 'hunter.' She wore a silk 'tile' and full hunting costume, and really made quite an imposing appearance, as her charger bounded into the air at the approach of the motor; however, she was equal to the occasion and managed

the frightened horse remarkably, and to me surprisingly, well.

"Our journey led us along the banks of the river Lee, well down to the ocean beach, where the Doctor had a call to emasculate a very nice young stallion. This afforded me an opportunity to demonstrate the "Conkey' patent hopple and securing harness, which we were not slow to embrace. The animal once secured, Mr. Hoare emasculated him by what is known as the 'torsion method' and he did it very cleverly and quickly, too.

"Here we witnessed a new departure from the American modus operandi, viz., the Doctor has a very novel method of administering chloroform, and informed us that he chloroforms each and every animal that he emasculates. However, he does not produce complete anesthesia, but just carries it far enough so that the colt does not fight and struggle while undergoing the ordeal.

"It is our intention to manufacture a modified apparatus similar to the one used by the Doctor, for general use of American practitioners. There is absolutely no danger or other disadvantage connected with its use, while on the other hand, there are surely many advantages gained from a scientific and professional point of view.

"On our return trip to Cork the only unpleasant incident to mar the drive was that of a punctured tire.

"On meeting the Doctor at his office the next morning he handed us the following letter, which is self-explanatory:

" '18 Cook Street, Cork, Ireland.
October 11, 1912.

" 'I have great pleasure in stating that Dr. L. L. Conkey has this day cast and secured a colt for the operation of castration with his patent hopples and securing harness, and that this method of casting and securing is far and away the best and safest with which I have ever had any experience. It is perfectly safe as there is no shock to the animal going down, and no strain on the lumbar muscles when the horse is down. Moreover, the horse comes down lightly on the spot he stands on, but few assistants are required, and he is released with facility. Another important matter is that the field of operation for castration is well exposed, a matter of importance in dealing with yearlings, in which the testicles are not fully developed. I have never operated with more facility, and I intend to adopt this method for securing colts for castration in future.

(Signed) E. Wallis Hoare, F.R.C.V.S.'

"Mr. Hoare purchased one of the Conkey 'right hand' emasculators also and has promised his opinion as to its usefulness after giving it a fair trial.

L. L. CONKEY."

Grand Rapids, Mich.

THE HOT IRON FOR COLD ABSCESSES

The October number of VETERINARY MEDICINE just received and before I say anything in regard to the articles contained therein will say that this issue is the cream of them all, and further that your journal has shown marked improvement in every issue.

I hope this improvement will continue as this country is rather short on up-to-date veterinary journals. I wish you continued success.

—

In reference to the article on "Surgical Treatment of Fibromas" by R. R. Dykstra, D. V. M., I wish to give my method of operating on the so-called "cold" abscess (a breaking down of the prescapular gland, causing a tumefaction which appears above the point of the shoulder and extends under the scapula).

I use a round iron, pointed, about one-fourth of an inch thick, heated to almost white heat. This is pushed into the tumor, directed toward the seat of the pus pocket and generally after heating twice, but in some cases the third time, I strike the pocket, and then stand from under for the steam forces the pus out with great force.

That ends the treatment (no injections are given, no drainage provided for). Generally after two days the horse is put to work, with practically no wound.

I have used this method on perhaps fifty cases in the last sixteen years and never had any untoward effects, excepting in one about six weeks ago when I struck an artery and had a very profuse hemorrhage which was easily checked by packing the cavity.

This horse is now well and there remains no scar.

Why we should use disinfectants in a wound where there is broken down tissue, I cannot understand for the sooner this tissue sloughs away the faster it will heal.

A twitch on horse is all the restraint I use and as yet have had no trouble in doing the operation, if the iron is good and hot.

F. A. ZUCKER.

Elizabeth, N. J.

TETANUS TREATED WITH ANTITOXIN

I have now been receiving the VETERINARY MEDICINE for two years and have been a regular drone in the community by not contributing one single article towards its success. A desire to do my part prompts the following:

On October 5th, at 4:30 p. m., I was called to see a sorrel mare belonging to the Hawke Livery. Upon my arrival I found the following conditions prevailing: both ears stiff (if one of the ears were pulled over it would fly back), the tail was elevated and the anus contracted tightly; legs getting stiff; saliva coming from mouth; trismus almost complete; the eyes were drawn back by the retractor muscle somewhat, and the membrane nictatous almost completely covered eyeball; bowels constipated, bladder lethargic, the abdomen all drawn up; and the walls of the chest rigid as iron; the neck muscles same way, but the hind legs were very little affected if any at all.

I diagnosed case as tetanus, and injected 3000 units of tetanus antitoxin, repeated in 30 minutes and again in two hours. The horse was put in a box stall away from noise as much as possible. The next day he received altogether 20,000 units of antitoxin at three hour intervals. The third day he began to brace up and at the end of six days recovery was complete; and the animal is now working again.

This case was treated by the stable bunch before I was called; and it was only when they had exhausted all their so-called remedies, that I was given a chance at the case.

The history of this case is that they were trying to run the mare into a corral and that she ran her head against a nail which was sticking out and punctured herself just a little above the eye. This happened the first of October and the tetanus developed the fifth. I attribute the cure of this particular case to the use of the antitoxin and to no other agency.

I should like to hear of the experiences of others with this product. I have often heard it argued that tetanus antitoxin is a good preventive but a failure as a cure after symptoms have developed.

Here is one case anyway where I used the antitoxin alone.

ROBERT SCOTT.

Butte, Mont.

CRYPTODIDYMUS OR HIDDEN TWIN

I received an urgent call, late one night to see a foal which had been born at 11 a. m. that day.

When I arrived I found that the colt had been unable to get upon its feet, and had been breathing very hard and groaning occasionally. To all appearances it was perfectly normal except that the abdomen was very much enlarged.

On examination I found that the abdomen contained fluid, which I aspirated with a small trocar, this relieved the tension of the abdominal walls and revealed a hard body within, with irregular outlines, which seemed to be about the size of a man's head.

I informed the owner of this and told him that the colt could not live, but as it was nursing from a bottle and was well-bred he thought he would try to save it.

It died the next afternoon, the owner immediately opened it and found that the "lump" was another colt, though very imperfectly developed, and weighing only about ten pounds.

The head, which contained a cranial cavity, one eye and rudimentary nostrils, was the only part which showed any of the true outlines, the rest of the body was a long rounded mass of flesh and bones covered with a thin transparent skin.

About the center of the body was a cavity from which the umbilical cord originated, this was found to join with the umbilical cord of the perfect or major fetus

and pass out with it through the umbilical opening.

A couple of local doctors had examined and mutilated the specimen, so that I could not have a photograph taken.

W. H. ROCKEY, M. D. C.

Punxsutawney, Pa.

—

COMMENT

The aberration in embryonic development termed by Gurlt "cryptodidymus" and by St. Hilaire "endocyme," is very rare and as in the case related by Doctor Rockey are usually so mutilated by some more curious than scientific observers that they afford a poor basis for study. Gurlt (Ueber Tierische Missgeburten, 1877) relates one case received in a mutilated condition, consisting of a left hind limb in which the metatarsus and phalanges were complete, a suggestion of os calcis and tibia were present, a femur, ischium and ilium evident.

There were present also portions of uterus and horns but whether these were a part of the included or including fetus is not clear.

Such rare specimens, however mutilated, should be carefully preserved and added to collections of this character where they may be studied.

Such teratoma probably have an origin very similar to that which we have illustrated in Figures 26 and 27, on pages 289 and 290 of "Veterinary Obstetrics." Instead however, of the one complete and one fragmentary germ separating from each other by fission and having a branched umbilical cord, in the case of the cryptodidymus, the fragmentary germ sinks into, or is surrounded by, the perfect germ.

Embryologists claim that the Muellerian ducts arise by an invagination of the epiderm from the abdominal wall of the embryo and it would appear possible that at that point imperfect traces of an embryo form, sink in with the Muellerian duct and there undergo an imperfect development as a hidden twin, in connection with the genital apparatus. This possibly explains the uterine fragments connected with Gurlt's specimen.

W. L. WILLIAMS.

Ithaca, N. Y.

KANSAS EPIZOOTIC NOT FORAGE POISONING

I see by an editorial in your most valued journal for October that you are of the opinion that the disease which caused such a great loss among horses in this section is the same as the "corn-stalk disease" of horses and cattle. Also that you do not think the veterinarians in this section did their entire duty in the way of warning the farmers against the pastures.

From my investigations and experience based on about 250 cases of this trouble, and having seen also a great number of cases of the so-called corn-stalk disease, I will say that, while we have certain similar symptoms in both conditions I do not believe they are the same at all. While this disease was at its worst I had two cases of the forage poisoning caused by eating moldy and worm-eaten corn and was able to tell the difference almost on sight as I think any other close observer could have done. The attitude, the expression, respiration all are different with still greater differences in temperature and pulse.

The charge that the veterinarians of this section were remiss in their duty is a serious matter to my mind and I think it was a mistake to make this statement as all the men in this part of the infected(?) district with whom I have been in touch advised a complete change of feed and water. We all insisted on having the animals taken off the pastures, all weeds removed from the yards in which they were confined and all the good pure water given that the animals would drink.

I have not found a case in horses that were on dry feed exclusively. It is only fair to state that most of the local papers through this section published the advice of the veterinarians under large head lines and urged their readers to take all horses and mules off the pastures.

The fact that many of the farmers failed to heed this advice should not be laid to the men who have tried to do their duty in a very trying situation. F. F. MEADS, D. V. M.

Burr Oak, Kans.

—

[See editor's comment following the next article.]

VETERINARIANS NOT AT FAULT IN KANSAS "HORSE PLAGUE"

I want to take exceptions to some of the statements which occur on page 449 of the October issue of VETERINARY MEDICINE.

It gives in the first and second paragraphs the facts arrived at, in conference in the Governor's office in Topeka. In the third paragraph you say that the Veterinarians hesitated to assert themselves, and this has resulted in serious reflections upon the veterinarians.

You contradict yourself in this, and furthermore this committee certainly did assert themselves, not only as a committee, but individually, but because of the fact that the press is always anxious for and apparently able to get startling statements and headlines, they frequently fail to look for the truthfulness of the situation, but rather take these startling sensational views that will creat a sensation, anything, in fact, that will create so far as possible an unrest in the people and a desire for more of such papers.

The fact of the matter is the reporters of many of our newspapers sought out the grafters and used their stories in preference to those given by conservative veterinarians and based upon facts. I know whereof I speak. I entertained reporters for three of our city papers for from thirty minutes to an hour each day, then they would present themselves to grafting institutions in this city and the grafters had the bulk of our stories. In fact, I found it was practically impossible to get anything before the public that was sane, common sense.

I believe you owe it to our profession to correct this idea that you have given, and again, I want to call your attention to another fact—Professional Ethics rather forbids newspaper puffs, and I found that in some instances, at least, reporters look at it from this view and expect a "tip" before they would quote any one.

In the general makeup of your article you intimate that the common sense practitioner was at fault in not having his statements published. I contend that the average ordinary professional man has no more chance of getting a correct statement in the ordinary press dispatch than President Taft has of being reelected. I trust you will make this matter clear in your December issue and give due credit to the fellows who have not appeared so publicly but who generally end in the right way.

A. T. KINSLEY.

Kansas City, Mo.

—

A careful rereading of the editorial referred to will show that the foregoing criticism is scarcely justified, since on the same page that the doctor mentions, page 449, the following statement occurs:

"The wholly effective advice of the practitioners for preventing the disease was crowded out of the papers and received comparatively little attention from the horse owners."

Of course it is realized that fakers and quacks and sensationalists will, by paying for it and otherwise, secure a disproportionate amount of publicity in a case of this kind. But in this editorial we had reference not to these rather to state officials, who were permitted a large amount of space in most of the newspapers.

The work of the veterinarians in the Experiment Station and of the Veterinary Department of the Agricultural College in Kansas was given much publicity, but they failed to use this opportunity for giving advice that would benefit the horse owners of the state.

The well-known Secretary of the Kansas State Board of Health had a great deal to say about the horse plague and the papers seemed eager to permit him to say it through their columns. Yet a pretty general reading of the papers of the state during that period failed to disclose any advice from the department of health that would enable the farmers to save their horses.

The Kansas State University jumped into the field with several of their best men and the bulletins they issued were almost as frequent as the extra editions of the *Chicago American* and yet their efforts were mainly directed to refuting the diplococcus theory, held by the Agricultural College and the strongyles theory advanced by the Kansas Veterinary Examining Board. A careful review of the situation at this dis-

tance fails to convince me that most of the statements, made in the editorial on this subject in the October issue, and particularly the statement referred to by Doctor Kinsley, were not justified.

PROPER QUESTIONS WILL BE ANSWERED

I see by the September issue of VETERINARY MEDICINE that you have an imagined grievance, because your subscribers failed to answer a list of questions propounded on pages 313 and 314 of the July issue; and I have the honor to present reasons why they were not answered.

In the first place, they were not asked to be answered: secondly, it appears as if they were just "shoved in" to fill up space following an inquiry as to the virtue of Cutler's Blood Pure Powders in curing fistula without external treatment; thirdly, some of them are actually foolish and others are not practical.

It appears to me that some executive veterinarian having nothing else to do with his pen, scribbled them off. Surely, no practical veterinarian ever wrote them. Some of these questions remind me of a favorite answer to a foolish question by a student to Dr. Joseph Hughes, C. V. C. "Why does a hen cross the street?"

I think that if these questions had been given more thought and had been under a decent heading, requesting readers to answer them, that they would have received notice, but under the existing circumstances, they were possibly treated as a joke by many others as they were by me.

The three questions in the September issue are all right. I will endeavor to answer them:

No. 1 (page 401). I have a great many cases such as are here described and I call the condition an acute congestion of the blood vessels. But around the hospital amongst my helpers we call it "skin founder." The treatment is simple. A good purgative and massage for the congested areas with a stimulating liniment.

No. 2. On account of the astringency of bismuth subiodide I think it would be harmful to a dog if it licked off much of it.

Answering Dr. Hubbard's question (page 401) I might say that I have used turpentine in the treatment of "sweeny" several times to good advantage. I inject 2 Cc. hypodermatically in four places, two injections on each side of the spine of the scapula six or eight inches apart, using altogether 8 Cc. of turpentine full strength.

Out of a possible twenty-five cases I had one case of sloughing which did not amount to much except that the animal was longer in the hospital than the others were.

J. R. SHAND, M. D. C.
Fort Wm. McKinley, Rizal,
Philippine Islands.

A MUCH USED BLISTERING OINTMENT

Please send me the formula for the "Shot-Gun" blistering preparation. This was the one containing so many ingredients. I think it was published about the August issue. I have a case here I am going to try it on as I have heard from several veterinarians, who have had excellent success with it. I appreciate your journal and will try and send you some case reports later. Thanking you in advance, I remain,

A. L. BEVERLY, D. V. M.
Stratford, Ia.

—

The article referred to follows:

This formula has given better results than the proprietary remedies, in the treatment of side-bone, spavin, ring-bone, splints and other forms of lameness. Only a few applications are necessary. In most cases the animals may be worked steadily during the treatment. Exceeding care must be exercised in applying this blister as it will penetrate without rubbing.

Corrosive sublimate, 2 drams; tartar emetic, 4 drams; gum euphorbium, 4 drams; cantharides, 2 drams; verdigris (finely ground), 2 drams; oil of spike, 2 ounces; oil of wormwood, 4 drams; croton oil, 4 drams; oil of turpentine, 2 ounces; mercurial ointment, 6 drams; tincture of iodine, 12 drams; tincture opium, 1 ounce; alcohol, 4 ounces; aqua ammonia, 2 ounces; tincture capsicum, 1 ounce; sulphuric acid, 1 ounce.

Mix together all the ingredients except the last and then the sulphuric acid.

Leave uncorked until cold. Shake well each time before using.

Directions: Clip off the hair, wash clean with soap and water, rub dry, and apply the blister with a swab, till the affected area is damp. *Do not rub.* Apply twice a week until the lameness is gone. If parts get sore from blister use an ointment and heat before applying again. If the animal is worked during the treatment apply before going to work in the morning, not at night. The horse will be very lame the next morning if the blister is applied at night.

There is no question about this formula doing the work but it must be handled with care, and one who uses it must use as little as possible. My method of application is to take a piece of woolen cloth about an inch wide. Wrap the cloth three or four times around a stick the size of a lead pencil. Dip it into the solution and brush the surfaces once over as lightly as possible. The person who follows these directions will find it a success and will be able to work the horse every day.

Of course, there is a great difference in drivers and the driver has something to do with the recovery of a lame horse. I always instruct drivers to be careful with the horses. Rough handling is the cause of many horses going lame.

W. A. P.

THE PERIOSTEUM WILL NOT SUPPORT A FRACTURED FEMUR

I was much interested in Dr. W. J. Martin's article on the "Unexpected Fatalities in Practice," in the October number of VETERINARY MEDICINE, but venture to take exception to his explanation of an unexpected fatality in connection with a fractured femur of a horse, which he refers to on page 464.

The Doctor concludes that this horse sustained on oblique fracture of the femur from the kick of another horse on the road to town. Granting his conclusions to be correct in this particular it certainly seems improbable that the periosteum should possess sufficient tensile strength, as he states, to sustain this quarter of the body sufficient to carry the animal ten miles.

Personally I do not believe the periosteum possesses this strength, nor do I believe this animal sustained a complete fracture of the femur until after returning home.

I do believe it possible a partial fracture was caused by a kick and that it became complete in the process of walking and possibly by lying down and rising; and that previous to this time, being a partial fracture the bone was supported by its own strength, aided by the periosteum and to some extent by surrounding muscles.

D. I. SKIDMORE.

Dayton, O.

KELLOGG'S RECTAL LOCK SYRINGE SATISFACTORY

In the September issue of VETERINARY MEDICINE Dr. A. Brodie gives his experience with Kellogg's Rectal Lock Syringe and reports unfavorably upon it. I am using one, and am having good results. It is far better than I expected that it would be. Six gallons of fluid can be injected per rectum *with ease.* Try again, Doctor. See that your *pump* is working. If not get a Sharp & Smith pump. Kellogg's Rectal Lock Syringe is worth many times the ten dollars it cost, if properly handled.

L. E. CHANCEY, V. M. D.

Oroville, Calif.

HANDLING TUBERCULOSIS IN IOWA

I do not favor retention of any reacting cow in a dairy because her bearing upon human life is too great. I do not believe keeping a tuberculous cow is an economical proposition for the dairyman because the disease is so easily communicated to hogs and loss of a few hogs each year will soon outweigh the value of the cow. I believe the time is coming when hogs, and other animals, will be shipped and sold subject to postmortem examination.

The other day I inspected a herd that the Bureau of Animal Industry reported to be about fifty percent tuberculous. The history showed that the farmer had bought a cow that was not just right. He killed her and fed the carcass to the hogs and he ultimately paid the price of fifty cows in loss among his swine.

There are a few progressive farmers who are alive to the conditions and will willingly have their cows slaughtered if they are found to react, for the benefit of the rest of their stock, and it is up to us to educate others so that they will appreciate these conditions.

We have a great deal of trouble with unscrupulous inspectors who will certify to the healthy condition of any animals that are brought to them. I think we should have the right to revoke the license of such practitioners. The statutes of Iowa prohibit the importation of breeding cattle without a certificate of health which includes the tuberculin test. That was extended recently to include all dairy cattle as well. Through this ruling we have been able to inspect all shipments of cattle coming into the state and in this way stand a chance of knowing what is going on.

Under the law the Supreme Court cannot compel a man to test, but at the same time any city can prevent the sale of milk from cows which have not been tested, so that if the citizens wish they may regulate these matters for themselves.

The milk is more than a carrier of tuberculosis to human beings, it brings disease into other herds of cattle and there is still another great source of spread of tuberculosis. Hogs are fed the carcass of slaughtered cattle. Those hogs would be far better off with no meat at all than such meat as that. If you feed hogs who have not been getting meat regularly a regular feast of it you may well expect scours and other symptoms of indigestion and withal a loss instead of gain from the meat.

Recently I was at a packing center in my own state and I learned that the reports from two killing houses of the previous day had been, ten percent of the hogs of one house tuberculous and fourteen percent in the other. We recently had a report from the Bureau of Animal Industry inspection of fifty-two hogs all condemned on slaughter and all from one shipment. We are going to test and find out where such an infection as that exists.

If one wishes to stamp such foods as diseased products and sell them, well and good, but the American people should not be asked to buy, as first class food, material that we know, on inspection, to be dangerous to their health.

J. I. GIBSON,
State Veterinarian.

Des Moines, Ia.

WISCONSIN SUCCEEDS WITH TUBERCULIN TESTING

A discussion of ways and means of dealing with Bovine tuberculosis is doubly interesting to me.

We are sandwiched between the east and the west. We led the tuberculin-testing fight. The first testing that was done was done in Wisconsin. We have made as many mistakes as anyone, but we are still on the firing line. We have more cows in the state of Wisconsin, and ship more butter than any other state in the Union. We have tested for the last fifteen or eighteen years and we have been killing cattle all that time and we are not bankrupt yet.

This tuberculin testing can be done. Tuberculosis is not a disease you can stamp out completely, partly owing to the persistent dishonesty of some people. You cannot make any regulations that will make people honest and the only way you can get a semblance of it is by eternal watchfulness.

The first thing is education. You get the people up in arms against tuberculous cattle, get them to see that the continuous spread of this disease is unnecessary and the rest will take care of itself.

Probably the greatest set back Wisconsin had in her testing was in attempting compulsory testing. That raised a great deal of objection and resulted in real genuine damage. The only lines along which you will win are educational.

We have not had any bother with our tags being removed in Wisconsin. I will admit that a good many may have been removed, there will always be unscrupulous people but you cannot blame the state for that. The only thing you can do is to watch constantly and make such people feel that you are right on their trail.

I want to go on record as regards the Bangs system. I do not believe it is practical for the farmer. It is a theoretical

impossibility for the practical farmer. The only suggestion I might make is that the state have a quarantine farm where these tuberculous animals may be kept until the calves can be taken from the tuberculous animals. Do not attempt to tell the people that they can keep such stock on the farms and make money, because they cannot.

There is not a cent of profit in a tuberculous animal. The longer you keep them the poorer you are and the more of them you have the worse off you are.

O. H. ELIASON.
State Veterinarian.

Madison, Wis.

LOCATING TUBERCULOUS CATTLE

I have been observing tuberculosis at postmortem examinations for the last twenty years. Nearly always the pig is the first animal to show the infection. If he could only show where his infection comes from we could do more in the eradication of tuberculosis with less money than in any other way. I think any means we can use to educate people to this fact, the danger to themselves, their cattle, and people in general, is desirable.

In Iowa about ten million hogs are sent to market annually. It would cost about a cent apiece to tag them. If the shippers would insist that they be tagged and that they all go into our packing houses tagged that would be all that is necessary. If a simple tag, with a serial number on it, were used information as to the source of the tuberculous hogs could be sent to the state veterinarian and he could tell just where the tuberculous cattle are.

There are, perhaps, four percent of the cattle in Iowa, five percent in Missouri and three percent in Kansas that are tuberculous. We are spending millions in treating the results of this original infection. Some of that might well be spent at the root of the trouble.

Several of the packers have tried to get together and furnish the money for tagging these hogs and I believe if the state would pass a law that would assist the packers, or if the federal government, or someone who has the money, would furnish these tags we could soon learn where the tuberculous cattle are located and take steps to clean up these disease foci.

T. A. SHIPLEY.

So. St. Joseph, Mo.

"THROMBO-EMBOLIC" INCORRECT

Regarding the discussion on pages 426-429 of the October issue of VETERINARY MEDICINE, in my opinion the name of "thrombo-embolic colic" is incorrect. A thrombus is never the direct cause of colic, which is always due to the emboli. The thrombus being only the secondary cause this type of colic should be spoken of as "embolic colic."

The thrombus is almost always situated in the trunk of the anterior mesenteric artery, and is caused in about ninety percent of all cases by the Strongylus armatus.

FRANK PFUSTLER, D. V. S.

Chicago, Ill.

CLASSIFIED ADVERTISEMENTS REACH BUYERS

I am surprised to learn what a great medium VETERINARY MEDICINE is for the advertiser. It reaches the general practitioners from the Atlantic to the Pacific coast. My classified advertisement brought returns far beyond my expectations.

No. 57.

PASTEURIZATION MORE PRACTICAL THAN ERADICATION

We can talk about tuberculosis and write it up in our journals all we please, but the real question is: what are you going to do about it? Tuberculous animals have value and you cannot dispose of a man's property without indemnity. The point for us to consider is a practical method to propose for the handling the matter.

This is a matter of education. I believe in compromise because I see more possibility of getting results from it. The dairymen are all afraid of a state test law because they think it will take away their business. If we compromise—let them keep some of their cattle we will not have

this determined opposition. The law that would require pasteurization would be a step in the right direction. Because we cannot do just what we want to with a clean sweep is no reason for standing back and doing nothing.

G. H. GLOVER.

Ft. Collins, Colo.

CHRONIC SUPPURATION FROM A DEEP INJURY

Please suggest treatment and prognosis for the following described mule:

A year and a half ago while tied in the barn a four-year-old, bay mule ran back on a post which penetrated a foot up under left arm leaving skin and muscles loose from chest. My client says he could hear the air come out through her side when the mule breathed.

It has all healed up except one sinus with its opening level with the radius and extending upward and inward for five inches where it penetrates between the fifth and sixth rib. The probe can be passed nine inches further up through the opening, which discharges freely a thick creamy pus. The mule is apparently in a healthy condition otherwise, not even lame.

When the left foot is pulled up in front of her two feet from the ground the pus flows out freely and as soon as the foot is lowered to the ground the discharge stops. Can this pus cavity be inside the pleural cavity?

Would potassium iodid be of any benefit in connection with nuclein and bacterins in this case? D. O. C.

—Oklahoma.

COMMENT

The treatment suggested may effect a cure; the value of potassium iodid in connection with bacterins and nucleins is very doubtful.

Beyond question there is quite a large cavity here filled with pus and having drainage only from the top. Recovery will certainly be very much hastened by establishing dependent drainage; if this is not practical in this case one or two thorough irrigations, with the removal of any sequestra the cavity may contain will improve the chances for recovery very much. Perhaps careful percussion over the chest wall will enable you to locate this pus pocket at a point where it is not far from the surface.

In this case there may be a sacculation of the parietal pleura inward with the pus cavity between it and the chest wall but not within the pleural cavity. The discharge of the pus when the foot is carried well forward is a strong evidence that the pus lies outside of the chest wall. The continued suppuration is probably occasioned by a sequestrum of bone, broken from a rib or a sliver of wood broken from the stake at the time of the injury.

LIQUEFACTIVE DEGENERATION A SEQUEL TO AZOTURIA

Patient: mare ten years old.

History: typical of azoturia.

Symptoms: typical of azoturia.

Diagnosis: azoturia.

Treatment: diuretic, stimulative, laxative, bran mash with alfalfa hay, plenty of cool water to drink.

Sanitation: clean, well bedded stall, out of drafts and warm blanket for affected parts.

Result of treatment: immediate improvement.

Sequel: liquefactive degeneration of both antea-spinatus muscles.

Treatment of sequel: opened tumefaction on muscles, drained thoroughly and prescribed astringent wash with potassium iodide in feed.

Results: mare limbered up some and appetite improved and she seemed quite comfortable as she could lie down and rise with apparent ease.

Remarks: did not see mare after operation on shoulder but on sixth day the owner telephoned in that mare was dead, due probably to absorption of septic material as the result of hypostatic infilteration of tissues.

This is the first one of the kind I had seen or heard of though I am advised it has been reported before in cases that have run some time without relief, it was a puzzling case to me, that is the sequel is

puzzling me, so I am writing this in the hope that it may enlighten and relieve embarrassment for some one else.

J. ROBINSON, V. S.

—

[The doctor does not say if the muscles of the shoulder were involved primarily in this attack but since the symptoms are given as "typical" we may assume that the hind quarters only were affected.

On this assumption is not the most probable explanation of the "sequel," that the mare died of a severe bruise of the antea spinatus muscles followed by septic infection? If liquefaction necrosis involving groups of muscles has previously occurred following azoturia we should be pleased to have a report of it.—ED.]

HEPATIC RUPTURE DURING AN ATTACK OF COLIC*

About six months ago I was called to see a mare weighing about 1500 pounds, with a history of an attack of colic about six or eight days previous. At the time I saw her the pulse was running low and she was somewhat anemic. When lying down she did not kick or give any evidences of colic.

I came back the following morning and told the owner I was of the opinion that there was internal hemorrhage. He thought if we could get the bowels to move freely she would be all right. That had been done the evening before and she did seem some better. He was encouraged, but I was not. He thought she would get along all right and said he would report.

Forty-eight hours later I was called. She had been lying down in her stall for two hours. She was heaving a little, had drank a little and eaten a little, would get up for just a few minutes and then lie down again.

I reiterated my opinion of the day before—that she had an internal hemorrhage and would eventually die. I asked him to report that evening. The following morning he called me up and said she was down, with her nose on the ground, swinging. I said "she will be dead in about two hours." She died that evening.

I told him to report her death to me because I was anxious to confirm my diagnosis by postmortem, and he was anxious for me to do so. I was called out of the city and the animal was taken away before I got back, but the owner was present at the autopsy and he said that they had found a rupture of the liver with the abdomen full of blood.

I have no doubt but that the rupture occurred during the pains of the colic she had had two weeks previously. It would seem that it started about the time she was taken sick.

J. H. CRAWFORD.

Harvard, Ill.

*Presented to the Illinois Veterinary Medical Association, Springfield, July 9, 1912.

A SIMPLE TREATMENT FOR FORAGE (MOLD) POISONING

As we all know, the treatment for parturient paresis of the cow was a stunner to the veterinary profession for years, but when the treatment was accidentally discovered, how simple it was and so it will be with a few more of the diseases which are still left for us to master.

I have been treating blind staggers for some time. I am sorry to say, but must admit, the mortality has heretofore been almost 100 percent. I have used all treatments I could read or hear of, but with no success. I could hear of empirics saving 75 percent of their cases, but when the truth was learned it was found that their success was the same as my own. I had almost given up in despair and intended refusing to visit any more cases, but a thought struck me, which I carried out and my results have been marvelous.

My attention was called to a grocery delivery horse with a well-marked case of blind staggers of the excitable form.

Having in my possession a physician's ice bag, I concluded I would try an ice pack over the brain. I filled the ice bag with cracked ice and tied it to the halter directly over the brain. In thirty minutes the horse lowered his head as if much relieved, and in an hour and a half could see as well as ever. That evening he ate heartily, and worked on the wagon the next day.

By all means secure a rubber ice bag so as to avoid the water running down over the face and if used in time your result will be as pleasing as the first time you used sterilized air for parturient paresis.

I. G. WIMSETT, D. V. M.

Winfield, Kan.

IMMUNITY OF A DOG TO TUBERCULOSIS

I was called to attend a case of engorged stomach at a country butcher's, and while drenching the horse noticed that my dog was eating something he had found rolled up in a newspaper, upon the floor. Upon investigating I found what he had been eating to be a large piece of diseased lung from a tubercular cow. The specimen was a solid mass of tubercles with a very little broken-down tissue. The dog ate a pound or more, and is alive and well at this writing, never having shown any symptoms of tuberculosis.

DR. J. F. B.

——, Maine.

PULICICIDES FOR DOGS AND CATS

It is with pleasure I receive the journal and read it from cover to cover. Some one please tell me in the next journal a good dusting powder for fleas on dogs and cats. There is a proprietary powder put on the market called "Black Flag" that is very effectual. Will some one tell me what it contains? It is put up by a Baltimore company.

C. A. M.

Maryland.

[Powdered sabadilla, see page 459, October issue, has been recommended for lice on animals and should prove equally efficacious for fleas.

It is important to remember that fleas are facultative or temporary parasites and a reinfestation is prone to occur with every exposure. Almost any of the coal tar disinfectants will rid dogs of fleas temporarily. All filth and dust should be removed from the places which the dogs frequent as it is here that fleas are hatched. On dogs that are permitted to associate with street curs the best that can be hoped for is to keep the number of fleas down to that "certain number " which is supposed to be "good for a dog."]

DEPILATORY CREAM

a	Powdered starch	20 parts
	Water	120 parts
b	Sodium sulphide	34 parts
	Barium sulphide	30 parts
	Water	180 parts
	Palm oil	36 parts
	Glycerin	21 parts

Stir the starch in tepid water in one vessel, and mark *a*. In a second vessel dissolve the sodium sulphide (crystals), and stir it and the barium sulphide in the water, add the glycerin and mark *b*. In another vessel melt the palm oil.

To mix the compounds, make the solution *b* boiling hot; stir up the starch solution *a* and then gradually stir it into solution *b*; keep stirring until the starch thickens, add the melted palm oil, mix all well together, and then add the perfume (oils of citronella, mirbane, lavendar, etc.).

Before the mass congeals pour it into porcelain pots or wide-mouthed bottles. For use, rub the cream into the hair to be removed until the hair loses its crispness and filamentous form and becomes a pulpy mass; then wash the part well with water, and the hair will all be removed. Should the skin smart after applying the cream, rub in a little olive oil or petroleum.

NOTE.—Such preparations should be used with caution.—*Canadian Druggist.*

COLD ABSCESSES DUE TO BOTRYOMYCES

In the discussion of Surgical Treatment of Fibromas, page 415–422, October VETERINARY MEDICINE, I see that the gentlemen taking part in the discussion do not understand one another. There are three kinds of these enlargements; they are usually caused by an ill-fitting collar.

1. A simple bruise with swelling, inflammation and enlargement of the surrounding tissue it may look like a tumor, but is not a tumor.

2. An abscess caused through infection of the abraised skin. This is not a tumor.

3. A genuine tumor, caused almost always through infection with Botryo cocus ascoformans and producing a condition called Botryomycosis.

Botryomycosis is an infectious disease which occurs almost exclusively in horses, causing fibrous growths (tumors) with softened yellowish brown areas in the center. It occurs in connective tissue, in the spermatic cord and rarely on other parts of the body. If metastasis does not occur, the tumor is benign. The only way to remove it is by total extirpation.

The operation has to be made under aseptic precautions and if the tumor is not too large in a standing position with a local anesthetic and morphine. The incision should be made perpendicularly in the middle of the tumor, but much longer than the diameter of the tumor itself, then with a two-edged, leaf-shaped scalpel the tumor is extirpated. This instrument is the best because it is sharp on both edges and you can cut left, right, up and down without changing your position.

Precaution has to be taken to make certain to get all the diseased tissue. It is better to take always a little of the sound tissue away, than to leave a piece of fibrous tissue there because the tumor will grow again. After all diseased tissue is removed, the skin is to be sutured and covered with iodoform collodion two per-cent solution.

When antiseptic precautions are taken the sore will heal by primary union. Iodine applied externally or applied internally will not cure a well-developed fibrous tumor. Turpentine may cure the smaller ones by producing suppuration. Always make a cross-section of these tumors when extirpated and you may find almost in the center of the tumor, yellowish white granulatomata which are composed of grape-like clumps of the botryococci.

F. PFUSTLER, D. V. S.

Chicago, Ill.

How can a leather-plunger hypodermatic syringe be kept from becoming dried out? Is there a solution that will keep it moist and sterile and ready for use?

ESOPHAGEAL PARASITISM

On the postmortem examination of a case dying from some mysterious ailment I found the esophaus and pharynx full of worms similar to the larval gastrophilus equi. The esophagus was full clear back to the stomach but there were none in the stomach although some of the same kind of parasites were found in the intestines.

The animal was a range horse.

G. W. P.

Texas.

HOW TO SECURE EXPERIMENT STATION BULLETINS

In reading the AMERICAN JOURNAL OF VETERINARY MEDICINE, of which I am and will continue to be a subscriber, I note a list of bulletins mentioned from Agricultural Experiment Stations. I am very much interested in some of them and will consider it a favor if you will let me know if the bulletins are obtainable and at what price? I take great pleasure in reading your journal and find many helpful notes in it.

E. J. M.

——New York.

Every veterinarian should be on the mailing list of the Agricultural Experiment Station in the state in which he lives, this will bring him all the Agricultural Experiment Station Bulletins issued by his own state.

For the Experiment Station Bulletins of other states he should write the Director of the Station issuing them, specifically naming the bulletin desired or giving its series and number. In nearly every case they will be sent free while the supply lasts. Or, one may apply to the author of a bulletin for a copy of it, stating where mention of it was seen. This is a very courteous thing to do, is complimentary to the author and never fails to bring the publication.

Bulletins issued by the United States Department of Agriculture or other departments of the Federal Government may be obtained from the Secretary of the Department or Chief of the Bureau, under whose supervision the bulletin is issued, or from the superintendent of Documents by

paying for them; or they may be obtained without charge by applying to one's representative in Congress, if applied for soon after publication.

Veterinarians are supplied circulars and bulletins of the Bureau of Animal Industry without charge, upon application to the Chief of the Bureau. The Department of Agriculture Farm Bulletins are free to all upon application.

Feeding Draft Horses, by W. A. Cochel, bulletin No. 117, Pennsylvania Agricultural Experiment Station, State College. This bulletin gives a record of an experiment which included twenty-one horses as nearly equal in age, size, sex, condition, conformation, temperament and weight as it was possible to select them. They were divided into three groups and fed for a period of eighty-four days with different combinations of feeds. The addition of good silage and cotton-seed meal to the grain ration was found to reduce the cost of fattening.

It was found that the most profitable horse for feeding purposes is one that shows every evidence of draft blood, with clean short legs, wide cannons, deep and wide both in chest and in middle, showing constitution and capacity throughout.

PATRICK DACEY of Franklin Forks, Susquehanna county, Pennsylvania, was recently fined for shipping tuberculous cows from New York to Pennsylvania. Dr. C. J. Marshall of the latter state initiated the proceedings against him.

A BLACKSMITH at Stull, Kansas, invented an "immunizing fluid" for the prevention of hog cholera. He got the fluid by placing bumblebees in a jug and allowing them, as he claimed, to sting one another and manufacture antitoxins and then putting in vinegar to dissolve out the antitoxin.

He treated a number of hogs, but as there was no cholera in the locality, some of his patrons were not satisfied that the "immunizing fluid" was preventing the disease, so Mr. Ryan, the local vulcan, imported a hog having cholera to prove his theory. The disease spread throughout the community and thousands of dollars worth of hogs were lost. This being the first visitation of hog cholera in that locality, naturally there is now some feeling against this "immunizing" fluid at Stull.

IN ITS efforts to make certain the eradication of dourine from eastern Montana, the United States Department of Agriculture has offered a reward of $50.00 for authentic information that will lead to the discovery of any stallion affected with disease and $25.00 for information as to the whereabouts of any infected mare. It is believed that the disease is eradicated from this section.

DR. A. BOSTRUM, state veterinarian of Nebraska is quoted by the Lincoln World-Herald, as having made some very remarkable statements in a popular lecture on hog cholera. Among other things the Doctor is credited with having said that formerly when hog cholera appeared among hogs, the sick animals were killed and their carcasses fed to the well ones and that by eating it the well animals acquired a "natural immunity" to cholera and the progress of the disease was stopped, and that now, since this custom was no longer followed, when hog cholera gets a start in a community that few animals can resist it and there is no way of stopping it.

THE Governor of Oregon has urged the consolidation of the offices of State Veterinarian and State Sheep Inspector. This will abolish one or the other offices but the Governor makes no recommendation as to which shall be abolished.

DR. I. E. NEWSOM, Professor of Anatomy in the School of Veterinary Medicine in the Colorado Agricultural College will succeed Dr. B. F. Kaupp, resigned, as pathologist, and Dr. A. W. Whitehouse a practitioner of Boulder, Colorado, will succeed Doctor Newsom as anatomist. Doctor Whitehouse is a graduate of the Veterinary Department of the Colorado Agricultural College and also of the Ontario Veterinary College.

Doctor Kaupp resigned his position in the Colorado Agricultural College to accept a

position as head of the Research Laboratories of The Abbott Alkaloidal Company.

The Nashville (Tennessee) Banner explains to its readers that "The greatest obstacle in the way of fighting hog cholera in this, as well as other states, has been, and is now, to get the farmers sufficiently interested in the matter to give a trial to the serum treatment. And that is amazing, too, for *the inoculation or vaccination is very simple and can be performed even by a woman.* It is said that the next General Assembly will be asked to appropriate money for the purpose of securing a sufficient quantity of the serum to provide *every hog raiser in the state* with enough *to start his own 'vaccine farm.'* The idea is of course, not to give the serum away, but to sell it to farmers at actual cost."

Happy days! when every man or every woman rather will be his (?) own hog doctor.

Dr. E. N. Brown has been appointed City Tuberculin Tester for Nashivlle, Tennessee, by the City Health Officer who says:

"The appointment of Doctor Brown to the position of City Tuberculin Test Inspector, I hold to be of great value to the city, for Doctor Brown stands at the very topnotch of his profession, and is one of the very best veterinary surgeons in the South today. He is a young man of excellent character, and they could not have selected a better man for the place."

Mr. and Mrs. A. D. Burrell of Croton, Ohio, announce the marriage of their daughter Flo. Vaughn to Dr. Clell. Bricker Perkins, veterinarian at that place. Doctor and Mrs. Perkins will make their home in Centerburg, Ohio.

Drs. C. S. Singer and D. E. Freiley, veterinarians of Pana, Illinois, had the misfortune to have the gasoline in their motor car catch fire, while returning from a professional call. Doctor Singer was injured in the explosion that followed and rendered unconscious for more than an hour. Doctor Freiley was unhurt. The car was burned.

For more than a year rabies has reached the proportion of what may be termed an enzootic among the dogs in St. Paul and Minneapolis, and numerous persons have been bitten. Throughout this time all measures designed to control and eradicate this outbreak of rabies have been opposed by mistaken humanitarians, who pretend to believe, either that there is no such disease as rabies or that it is not contagious.

The controversy between the friends of the dog and his mistaken friends has been spirited from the start and at times acrimonious. Drs. Chas. E. Cotton and S. H. Ward have lead those who advocated muzzling and quarantining the dogs.

A climax to this controversy was reached when Mr. J. T. Heisser, imported from the East to balk all intelligent measures to prevent the spread of rabies, to brand the Pasteur Treatment as a fake and generally decry those contending there is such a disease as rabies, dramatically declared at a public meeting that rabies does not exist and Doctor Cotton arose in the audience and offered him one hundred dollars in cash if he would permit a dog then in his (Doctor Cotton's) hospital to bite him. Mr. Heisser declined because he did not need the money, but the meeting adjourned to the hospital and those present were convinced that the disease actually does exist, by the case of furious rabies that Doctor Cotton had to show them.

A NEW CELL PROLIFERANT: ITS CLINICAL APPLICATION IN THE TREATMENT OF ULCERS

My attention had been directed to the fact that the Symphytum, or common Comfrey, had been much recommended by the ancient writers in medicine as a vulnerary and as a dressing for sores and ulcers of various kinds. From the days of Saxon leechdom to the end of the seventeenth century there were few authors who did not refer to it, and it was sometimes spoken of as being the "chief vulnerary herbal." I can find no reference to Comfrey in any books on materia medica or therapeutics of relatively recent date; Pereira, for instance, does not refer to it, and it was never an official remedy so far as I can discover. To this day, however, it has a traditional reputation among country folk, both in England and in Ireland, as a domestic herbaceous "simple" for applying to sores, and I was much interested during the past summer, when visiting a farm at Tarvin in Cheshire to find that its owner always keeps a bed of Comfrey

growing in order that he may provide the villagers with it when occasion arises.

Through the kindness of Professor Harvey Gibson I was provided with a large quantity of the root, some of which was handed over to Dr. Titherley and Mr. Coppin, of the Chemical Department of the University of Liverpool, and while they were making a careful chemical analysis of it, which took a considerable time, I proceeded to dress the only ulcer which was then available to me with a strong infusion made from the powdered root. This case was an exceedingly unpromising one, because it was a "rodent" of about two years' duration not a simple ulcer. After being dressed with the mucilaginous infusion for about a week the surface cleaned, and a distinct growth of epithelium could be seen taking place from some of the marginal points. Later on the upper margin flattened somewhat on its inner aspect, the undermining vanished, and after growing here and breaking down there for a time, the epithelium became stronger and closed in to a considerable extent.

By this time Dr. Titherley reported to me that he had obtained a definite, so far unidentified, crystalline body from the root, and he was able to give me sufficient to experiment with. Since it was very sparingly soluble in water, quite a large amount of solution was made, which was now used as a dressing for the ulcer instead of the infusion. With this application the skinning-over process in the course of a month was all but completed.

In his preliminary examination Dr. Titherley established the facts that the root contained: (1) Gums. (2) Sugars, including a reducing sugar. (3) Resins. (4) A protocatechuic derivative or derivatives. (5) A substance giving an intense yellow solution with sodium hydrate (not investigated further). (6) A crystalline solid, very rich in nitrogen and melting at 226 C.

Since from clinical observations this latter body appeared to be the physiologically active constituent of the root, Mr. Coppin was asked to devote his attention to its investigation; but Dr. Titherley and he found that the root contained about 0.8 percent, of it, and by estimating its carbon, hydrogen, and nitrogen contents he showed that it possessed the same empirical formula as allantoin, which it greatly resembled in its chemical properties.

Some allantoin was now prepared from uric acid, and the product from the root was proved conclusively to be an identical substance by chemical methods. For example, allantoic acid and other derivatives were prepared both from the chemically made allantoin and from that obtained from the root; their melting points were the same, and so forth.

Regarding the chemical physiology of allantoin or the part which it plays in human metabolism very little is known, but some interesting facts have been recorded which may throw light upon its action as a cell proliferant and may point to its having a function to perform in the bodily chemistry, apart from any possibility of its being a product of purin metabolism, in which light it has generally been regarded. It is present both in animals and plants. It was first discovered in the former, and received its name from the fact that it was found in the fetal allantoic fluid. Later on it was identified in the urine of pregnant women. Recently its presence has been demonstrated in very small amounts as a normal constituent of the urines of healthy people, but that it is not an end product of human metabolism, which means that it is probably not derived from the oxidation of uric acid to which it is closely allied, has been shown by a good many observers, as pointed out by Dr. Ackroyd in a paper published in the *Bio-Chemical Journal* for March, 1911. This is an important observation, and is based upon the works of Schittenhelm, Wiener, Minkowski, Poduschka, and Wieschowski, who have shown that when allantoin is given to man it can be recovered to a considerable extent in the urine, and the author himself concludes "that the whole quantity of allantoin excreted by man on a milk and vegetable diet may be derived directly from that contained in the food." It will be noted that I am speaking of the relation of allantoin to human metabolism only. In the dog, cat, and rabbit, on the other hand, it appears to be a normal end product of metabolism.

If these facts are reliable the allantoin in human urine is mainly derived from vegetable foods, as pointed out by Dr. Ackroyd, and in the healthy individual it appears to pass practically unchanged through the economy, the amount eliminated representing about the amount which had been ingested.

Our knowledge of the distribution of allantoin in the vegetable kingdom is not very extensive, but it is a very suggestive and interesting fact that such analyses as have been made indicate that it is generally found in parts which are related to growth either active or potential. For instance, in 1881-82 Schultz and J. Barberi found it in the buds of certain plants and in the bark of branches of trees, and Ackroyd refers to its identification in the embryos of wheat separated in the process of milling, and in beet juice by Richardson and Crampton (1886); he has himself demonstrated its presence in bread, French beans, and green peas, whereas it is absent from bananas and rhubarb. Now this is a suggestive circumstance taken in conjunction with the fact that it is a characteristic component of the fetal allantoic secretion, and related therefore to an important structure connected with the fetal circulation, a structure along which the vessels pass which convey the fetal blood to and from its intimate relationship with the maternal blood.

Whenever we find any substances constantly in certain parts of plants or animals it is quite reasonable to suppose that they may be in some way related to and necessary for the particular tissues which have selected them, and although the allantoin in the human embryo might be regarded as a fetal waste product, I think we may feel justified in assuming that, in the economics of Nature, it has a function to perform, perhaps in relation to cell multiplication, especially as it is not at once eliminated through the maternal circulation. The same suggestion is raised by the fact that it is also present in milk, the food of the rapidly growing young organism, and in the parts of some plants in which active cell multiplication takes place.

I have on more than one occasion cured old ulcers which have resisted other treatment, by the simple extract from the root applied on lint to saturation. After a few hours this dressing, in favorable cases, sets quite hard, and can only be removed by the lengthy application of water, which is often more tedious and painful than the average patient, who has been in the habit of applying some simple dressing, cares to endure. This hard setting acts, in some measure, like strapping, drawing the edges of the ulcer towards one another, but probably much more evenly and accurately than the most skillful strapping could effect. This looks as though the cure is wrought similarly to healing under the scab.—*British Medical Journal.*

ILLINOIS DAIRY REGULATIONS

It shall be the duty of any person owning or having control of cows used for the production of milk for sale or exchange, to keep only such cows for this purpose as are in good flesh and free from disease.

Every person keeping cows for the production of milk for sale or exchange must cause every such cow to be thoroughly cleaned each day and to be properly fed and watered.

Cows must be amply supplied with clean, pure drinking water.

No building shall be used for stabling cows for dairy purposes which is not provided with a tight floor—cement, when practicable—and laid with proper grades and channels giving good drainage; and if a public sewer abuts the premises on which such building is situated, sewer connection must be made. The building should be provided with stalls not less than four feet in width. It should be screened.

Walls, floors, windows, ceilings and all other portions of the building must be at all times maintained in a clean condition. Walls should be whitewashed at least once a year.

Each stall shall be provided with good light. It is recommended that four square feet of glass be provided for each cow.

Stalls must be provided with good ventilating facilities, allowing not less than five hundred cubic feet of air space per cow.

Manure and other wastes should be removed from the stable daily. If it is impossible to haul away the manure each day, water-tight receptacles must be kept outside the building for the temporary reception of dung and other refuse.

The stable yard must be maintained in a clean condition, well drained, and there must be provided a proper receptacle for drinking water for cows, such water being of a pure and wholesome nature. No water closet, privy, cesspool, urinal, inhabited room or workshop shall be located within, or connected with any place used for stabling cows kept for dairy purposes or for the storage of milk products, nor shall any fowls, horse, hog, sheep, goat or other animal be kept in any room used for such purposes.

It shall be the duty of each person keeping cows for dairy purposes to provide and use for the storage of milk and milk products, a suitable milk house, which shall have a tight, sound floor, and which shall not be connected with any other building. Said milk house must be well lighted, well ventilated, and well screened, and at all times be maintained in a clean condition.

Each milk house must be provided with proper facilities for rapid cooling of milk, and with hot water for cleaning of utensils, pails and strainers, which must not be used for any other purpose and which must be maintained in a clean condition.

Each milk house must be supplied with pure water, preferably running water.

No person suffering from a communicable disease or living on premises where a quarantinable disease exists shall be employed as a milker, or otherwise be engaged in the handling of milk and milk products, or in any manner come in contact directly or indirectly with the milk, or milk products to be sold or exchanged.

Strict cleanliness of the hands and persons of milkers and others engaged in the handling of milk and cream and milk products, and the bodies of cows, especially of the udders and teats, must be enforced at all times. All care possible must be taken to avoid getting dirt into the milk.

Milk should be taken to the milk house right after milking, and strained, and then cooled to a temperature of from 50 to 55 degrees F. and while stored must be maintained at this temperature.

Dirty bottles, or those improperly cleansed, frequently cause the transmission of disease. Bottles should be washed with boiling water (or near the boiling point), to which soda or some other suitable "washing powder" has been added. They should then be rinsed in hot water, and kept in an inverted position in a dustless room, free from flies. Whenever practicable, bottle washing machines should be used.

It shall be the duty of all persons transporting milk or milk products for sale or exchange, to ship such milk in receptacles which have been thoroughly cleansed or sterilized. The milk must be protected from heat, perferably by the receptacles being iced. No person shall be permitted to transport milk or milk products from any premises where there is a dangerously communicable disease.

It shall be the duty of any person having charge or control of any premises upon which cows are kept for the purpose of the sale or exchange of milk to immediately notify the local health authorities of the existence of any contagious or infectious disease among persons on such premises. The local health authorities shall immediately notify the Secretary of the State Board of Health of such contagious or infectious disease upon such premises, and no milk or milk products shall be sold, exchanged or in any other manner distributed until all danger of a spread of the disease has been removed, and this fact has been certified to by the local health officer or the Secretary of the State Board of Health. No person who handles or milks cows, who has the care of handling of vessels for the sale, storage or disposal of milk or milk products or in any other way comes in contact with milk or milk receptacles, shall have any communication directly or indirectly with any case of diphtheria, scarlet fever, typhoid fever, smallpox, measles, anthrax, erysipelas, menginitis or infantile paralysis, or any other dangerously contagious or infectious disease.

The law requires that any case of contagious or infectious disease occurring among cows in a dairy herd shall be reported immediately upon the discovery thereof to the Secretary of the Board of Live Stock Commissioners at Springfield. A copy of such report should be sent to the Secretary of the State Board of Health.

The foregoing rules and regulations shall apply to all persons keeping cows for the production of milk or milk products for sale or exchange, and to all premises on which cows are kept in this state. The duty of their enforcement devolves by the organic act, creating a State Board of Health, on the police officers, sheriffs, constables, state's attorneys, and all other officers, and employees of the state, and upon all health authorities of the state. The following constitute such health authorities:

a) City councils, boards of village trustees or regularly constituted boards of health of cities and villages.

b) Supervisors, assessors and town clerks of townships in counties under township organization, or boards of health appointed by them.

c) County commissioners in counties in which there are no township organizations, or boards of health appointed by them.—ILLINOIS STATE BOARD OF HEALTH.

Nan

By GORDON G. BURDICK, M. D., Chicago, Illinois

OUR "red light" districts are not maintained for the benefit of the underworld but to entertain the upper world and give a place where human passions may have a free rein. Six thousand girls are required yearly to make up the death toll in these places, and the business of supplying them has become as well organized as any other institution. Thousands of individuals make their living in this terrible business, and nearly every country on the face of the earth sends its girls to supply the demand. Up to ten years ago many girls reformed, having become tired and disgusted with the loathsome occupation. This is now a rare event, owing to the fact that science is now applied to the problem.

When a young woman enter these places at present the landlady makes it her business under one pretext or another to make a morphine or cocaine fiend out of the raw material; when the girl becomes a slave to the habit she is not going to run away owing to the fact that she must have the drug and can not get it in any other place. Their life averages about five years, and then they go to make up the hideous wretches, who are found in some dark, damp cellar where a chinaman or negro runs an opium joint. They become birds of prey, disseminating disease and death to all they come in contact with. As a general rule about one year of this life sends them to our institutions either insane or suffering from some loathsome disease that terminates their miserable life.

In the few years that I spen among them, I have seen many splendid girls enter upon this disgusting life and have remonstrated with them in vain and I have been a passive onlooker while they took the dizzy slide and I have many times

The "Red Light" district is not run for the benefit of the people who live there but to entertain the upper world and give full reign to human passion.

been the only friendly face at their bedside when their eyes were closed in death. There seems to be no remedy for these conditions, they are inevitable. Education does not help the matter and never will. While human passions exist as they are at present the yearly sacrifice must be made. No honest attempt has ever been made, to my knowledge, to curtail the spread of our social evil. For many years delegation after delegation of devoted women went to the Legislature to try and change the age of consent from 12 to 16 years, only to meet with disappointment year after year

Science is now applied to the problem; all inmates are made morphine or cocaine fiends

until eventually after a very elaborate attempt was made, it was reluctantly raised to 14 years. Just why our representatives were so reluctant to grant this favor in the interest of decency can only be solved by exploring some of the dark recesses in the human mind. The bitter oppositions would almost make us believe that every one of them had the ambition to help a young girl downhill and was fearful that he might be punished by a law of his own making.

Aunt Mary's home was a clearing house for any girl who had succeeded in escaping from the public houses, so that she was right at home when she found herself with four new members of her family; as a general proposition, however, she had to scratch to support all of her philanthropic work as it was seldom that she had any other reward than the consciousness of a good deed well done. Any girl was welcome who needed her help and she reminded me of an old Brahma hen who was always suffering from an imperative impulse to set. It did not seem to make much difference what she set on, a door knob, or a chunk of ice never seemed to dampen her ardor and she would set and look so divinelyf oolish that it was almost impossible to resist the impulse to kill her. The boys put up a job on her at one time, they succeeding in getting

a setting of eggs in which they had a goose, turkey, duck and a fair sprinkling of guinea hen and turtle eggs, and by assiduously attending to business she succeeded in hatching most of the setting, and while talking about strenuosity, she had our late President beaten to a frazzle, taking care of her polyglot family. I would have given a year of my life if I could have looked into her mind at times. She succeeded in raising her brood, but was never detected in the act of setting again, her maternal instinct seemed to have gone on a vacation. It was so with Aunt Mary, she was repeatedly stung by her proteges but she never seemed to learn and her big heart welcomed each new arrival.

The Doctor's Problems

Having deposited my charges at the door of Aunt Mary's house, and paying the cabman, I went home for a well-earned rest, with many misgivings as to the propriety of my actions. I was not unaware that my conduct might bring down upon my devoted head all the power of some of the strong men who lived and thrived upon the evil system that I dared to interfere with, and I was perfectly aware of the extent of this power and its ability to crush any foolish person who had the audacity to even express his opinion about the way things were conducted. I had seen others come and go who were under the impression that they could regulate matters in the interest of morality. They invariably retired broken and discredited from the conflict, while scarcely a ripple stirred the slimy pool of the underworld to show them the human sharks who had bitten them.

Too many times I had provided a way for the escape of some likely girl and I was already suspected of a want of loyal sympathy for the system, and had several times been warned that it was not a safe proposition to take any sides in the matter. I had seen the undoing of Orthodox Jim, a young preacher, who had pursued a still hunt for a delinquent sister; she had eluded him for several years only to be found and forgiven on her death-bed. This devoted man believed that with the help of God he would be able to terminate the system of involuntary service and provide a way for those who were detained against their will, to escape. For a year or so he was tolerated with good natured banter, and was believed to be "cracked"; soon, however, he interested enough people in his work to enable him to make many daring rescues, and eventually he was marked for punishment. So one night while he was holding his street corner meetings, he was slugged by a drunken (?) man and injured so severely that it was several months before he could resume his work. His new-found friends stuck by him, however, and he renewed his work with greater vigor than ever and he was put against one of the oldest brace games known to the underworld. He was invited by Madame Liz. to come in and talk to her girls, and given carte blanche to hold a meeting every Wednesday evening. The poor fellow, thinking he saw an opportunity to be useful, accepted the invitation in good faith and was surprised and delighted to find an attentive and inquisitive audience. He was asked to have some refreshments and accepted and drank a cup of coffee, and—well! as the morning papers had it in flaming headlines—"Police Raid Madame Liz.'s House on Stenth Avenue. The Rev. Jim Dogood found drunk in bed with one of the inmates. His church friends greatly shocked, etc., etc."

Yes, it has always seemed queer to me that the police raids seemed so well timed, and many a well meaning reformer has succumbed to chloral and police arrest, just at the period of his greatest success, and our virtuous daily papers are always willing to lend themselves to a police frame-up even when knowing that it is a "fake."

(*Continued on page 581.*)

They were used to lure men to buy beer at fancy prices.

Title page forms p.573-574.

INDEX TO CONTRIBUTORS

VOLUME VII, 1912

Achard, H. J., 286, 370
Ackley, Cliff, 50
Alverson, A. G., 516
Antoine, Prof., 489
Artopoeus, F. C., 481
Ash, P. F., 518
Asher, H. E., 554
Ashley, Cliff., 566
Babb, Geo. F., 457
Barnes, F. E., 462
Beaumont, L. C., 252
Beckman, F. W., 446
Bergman, H. D., 323
Best, W. R. L., 65, 200
Beverage, A. W., 252
Bibens, D. H., 458
Bischoff, Ernest, 117
Boehme, W. A., 389
Booth, E. T., 36
Bourne, R. F., 41, 228
Bowen, G. C., 206
Boyd, H. W., 253
Brady, William, 531
Bronson, E. M., 308, 345
Brownlee, W. F., 515
Bunnell, W. G., 388
Burbridge, C., 347
Burdick, A. S., 325, 326
Burdick, G. G., 465, 521, 585
Bush, E. R., 155
Butler, G. W., 460
Buzzard, D. K., 197
Campbell, D. M., 11, 12, 55, 91, 93, 94, 95, 96, 130, 131, 185, 186, 188, 189, 190, 240, 242, 287, 289, 291, 292, 331, 333, 334, 335, 373, 376, 377, 378, 379, 435, 436, 437, 448, 451, 491, 492, 545, 546, 547, 548
Campbell, W. T., 212
Candler, Geo. H., 30
Carlock, Harry, 253
Chadwick, A. W., 349
Chambers, Frank, 388
Chancey, L. E., 560
Chapman, Louis, 250
Chedester, O. D., 112, 205
Coggins, H. J., 349
Conkey, L. L., 554
Cook, Clarence E., 511
Cox, W. B., 28
Craig, J. F., 213
Crawford, J. H., 564
Curtiss, A. C., 390
Davis, John A., 116
Dean, E. Arthur, 251, 391, 517
Dean, R. A., 249
Dedrick, J. H., 312
Deming, S. A., 365
Devine, Brennan, 317
Dimock, W. W., 527
Dunn, L. T., 250
Dykstra, R. R., 415, 424
Eckhout, A Vanden, 359
Eliason, O. H., 571
Ellis, Ralph, 312
Everett, A. T., 303
Fairfield, H., 67
Fetzer, Lewis W., 21, 61, 97, 137, 191, 245, 329, 338, 455, 474, 479, 502, 549
Foster, J. E., 509
Franklin, Bert, 309
French, Cecil, 301
Gallier, S. H., 426
Gibson, J. I., 560
Gilbert, W. R., 115
Gladman, Geo. J., 208
Glendenning, C. G., 508
Glover, G. H., 562
Good, E. S., 121
Goundry, Thomas D., 40
Graham, R. R., 283
Grange, C. H., 113
Gray, Burl W., 114
Green, T. C., 389
Gregg, Ira M., 250, 391
Greiner, L. A., 107
Hadley, F. B., 342
Hall, C. C., 399
Halverson, H. M., 198, 509
Harbaugh, J. W., 356
Harris, E. D., 274
Hassel, W. G., 357
Hatch, C. E., 513
Hebrant, Prof., 489
Heckard, C. J., 507
Heiny, E., 266
Hell, Henry, 343
Hermann, A. A., 422
Herring, L. J., 394
Herron, Wallace A., 140
Higbee, M. R., 205
Hill, C. G., 195
Hinkle, Truman B., 111
Hoare, E. Wallis, 174, 220, 471
Hobbs, E. E., 68
Hoopes, Hebert, 395
Hueben, F. H., 78, 86
Ide, A. H., 67
Iliesco, Geo. M., 286
Illingworth, D. A., 206
Jessen, Julius A., 125, 383, 384, 498, 499, 500, 501, 551
Johnson, E. C., 113
Johnson, O. J., 509
Katzenberger, J. V., 313
Kaupp, B. F., 248, 258, 397, 401, 460, 482, 514
Kay, D. S., 110
Kerschner, P. I., 76
King, E. H., 507
Kinsley, A. T., 114, 231, 280, 344, 350, 351, 558
Klaveness, E., 368
Knisely, D. O., 201, 202, 348
Lacroix, J. V., 67
La Forge, G. W., 153
La Pointe, R., 205
Lewis, L. L., 233
Lienaux, Prof., 370
Long, F. M., 395
Luckey, D. F., 81, 156
Lundell, A. O., 180
Lunn, Chas. M., 510
Lyman, Richard P., 167
McCarley, J. A., 197
McCartney, H. J., 102, 106
McCracken, R. W., 429
McGraw, E. F., 109
McLean, L., 412
McNamon, James B., 254
Maier, M. E., 143
Maitland, E. P., 249
Mansfield, C. M., 261
Martin, W. J., 431
Mathers, L. H., 116, 260
Mathew, C. A., 147
Maxon, H. C., 351
Maxwell, H. S., 505
Mayo, N. S., 26
Meads, F. F., 345, 557
Merillat, L. A., 309

Meyer, E. A., 399
Meyer, Geo. W., 120
Mills, J. H., 104
Mizner, L. C., 348
Moore, R. C., 102, 104
Moore, Veranus A., 1, 259
Morris, W. H., 469
Nasmith, G. G., 283
Parshall, Glenn E., 209, 259
Opalka, Dr., 160
Penrod, W. A., 157
Perrin, E. R., 101
Peters, A. T., 160
Peterson, L. N., 65, 399
Pfustler, Frank, 562, 566
Pipkin, Charles, 261
Pratt, G. S., 25
Quintin, Chandler, 111
Ragland, M. J.
Ray, M. W., 463
Reynolds, M. H., 17
Richards, H. S., 342, 463, 468, 514
Robinson, J., 563
Robinson, W. B., 26, 254
Rockey, W. H., 556
Rosenberg, A. von, 263
Rossiter, J. W., 154
Rowe, H. J., 254
Rowles, Leslie, 109
Russell, M., 117
Saunders, C. G., 75, 154, 459
Schaffner, Valentin, 510
Scharr, E., 160
Scheidegger, Ad., 474
Schubel, E. C. W., 349
Scott, J. W., 388, 393
Scott, Robert, 556
Seely, J. T., 183
Segsworth, F., 246
Seibert, Z. W., 27
Shipley, T. A., 562
Siegler, T. A., 462
Skidmore, D. I., 306, 431, 559
Slater, J. Harvey, 151
Smith, Henry, 253
Smith, J. W., 40
Spencer, T. N., 52, 366
Spencer, W. H., 343, 344, 347
Spoon, J. P., 47
Stanbridge, G. W., 462, 519
Starr, F. M., 198, 533
Steffen, M. R., 429
Stuart, O., 114
Sweeney, J. H., 197
Tanner, V. E., 109
Taylor, F. J., 385
Treman, A. J., 392
Treman, H. B., 33, 372 513, 514
Tricket, A., 114
Truax, B. W., 400
Ullmann, H., 329
Van Allstyne, W. C., 29
Waldron, A. W., Jr., 341
Walters, Percy K., 141
Ward, B. F., 351
Warth, A. L., 113
Watkins, S. E., 109
Weaver, P. V., 25
White, Geo. R., 151
Whitehouse, A. W., 199 310
Whittelsey, R. T., 37
Wiggs, E. M., 24, 148, 392
Wight, A. C., 400
Wilkinson, J. Atkinson, 27
Williams, W. L., 105, 557
Wimsett, I. G., 564
Woodruff, H. A., 267, 475
Worms, A. C., 511
Yerion, E. D., 204
Young, G. R., 353
Zucker, F. A., 555

ROGERS, BR-535

GENERAL INDEX

VOLUME VII, 1912

A

PAGE

Abdominal Surgery in the Horse 475
Abortion, Infectious, Investigations of 121
" " of Mares 141
Abscesses, Cold, Due to Botryomyces 566
" " The Hot Iron for 555
" Metastatic, Obstruct the Intestine. 390
A. C. E. Mixture 208
Adrenalin and Cocaine in Foot Infection 325
" Chlorid in Colic 68
Advertising in Farm Papers, Unreliable 546
Afterpains, How to Treat 253
Air-Sac Mite, The 258
Alfalfa Impaction, A Treatment for 399
" Rash, Successful Treatment for 110
Allantoin for Indolent Ulcers 568
Alternative, Eckman's 355
American Veterinary Association, A New 333
Ames, New Buildings at 446
Anesthesia Conpulsory for Vet. Operations .. 435
" in Veterinary Practice, The Value of 460
" Partial, Fatal Accident from 199
Antihog-Cholera Serum, The Quality of 397
Antiperiostin, On the Very Decided Action of 510
Antiseptic Surgery—Its Originator 95
Antitetanic Serum and Lobelia for Tetanus .. 481
Antitoxin for Tetanus 556
Aphthous Stomatitis in Tennessee 151
Apomorphine Relieves Choke 345
Appreciation (A Poem) 156
Arecoline and Atropine for Choke 157
" Causes Drenching Pneumonia 510
" Contraindicated in "Heaves" 519
" Dose of 209
" —Small Doses Best 462
Army Legislation, Support, Actively 55
" Veterinary Bill to The Senate 188
" " " Revived 548
" " " —Support It Now 242
" " Legislation in the Balance ... 130
Arsenical Tolerance of Sheep and Cattle 26
Articles, No Duplication of 185
Ascaris Infestation 28
" Megalocephala 249
Ascites, Unusual Case of 29
" Were These Cases of? 105
Atrophied Muscles, Treatment for 140
Atrophy from Azoturia 347
" Shoulder, Some Notes on 509
" Strychnine and Blistering for 463
Atropine and Arecoline for Choke 157
Avian Tuberculosis, Prevalence of 188
A. V. M. A., A Glimpse of the 1912 Meeting .. 437
" Meeting, The Approaching 377
" Meets August 26–30 189
Azoturia and Colic Simultaneously 348
" During Pregnancy 252
" Gas Injections for 326
" Liquefactive Degeneration, A Sequel ... 563
" New and Successful Treatment for 429
" The Atrophy Following 347

B

Bacillus Aerogenes Capsulatus, Infection With 365
Bacterins for Leucorrhea 116
" in Veterinary Practice 47
Bacterin Treatment for Canine Distemper 422
Balling, Rubber Hose for 109
Biologic Therapeutic Agents, Veterinary 280
Birds, Fractures In 397
Bismuth—Iodine Paste, Formula for 208
Black Oil, Formula for 67
" Tongue, Cure for 116
Blind Staggers or Corn-Mold Poisoning 395
Bog Spavin, A Treatment for 513
Breeding, Peculiar Case in a Dog 197
Brenton's, S., Fame Spreading 258
Broken Legs, Dressings for 517
Bronchitis, Clinical Reports 207
Budd, T. Earle, Dead 470
Bursattee 399
" Formalin for 104

C

Calculus, A Vesical 114
Campho-Phenique; An Official Report 206
Canine Distemper, Bacterin Treatment for ... 422
Canker, Potassium Iodide for 151
Carabao, The 65
" " (Water Buffalo) 200
Casting Harness, Knowles Webb 156
" The Best Appliance for 313
Castrating Cows, The Technic for 474
Castration, A Covered Operation 392
" Aseptic 388
" of the Horse While Standing 327
Cautery, Actual for Cold Abscesses 555
Cerebrospinal Meningitis in Kansas Horses ... 458
Cervix, A Closed 463
Cholera Killing Horses 74
Chemistry and Toxicology, Holland's 59
Chicken Eater, A Confirmed 266
" Mites, The 248
Chloroform—Influence on Blood Corpuscles ... 499
Choke, Arecoline and Atropine for 157
" in Suckling Colt 197
" Relieved by Apomorphine 345
" Thoracic, In a Steer 511
Circumcision of a Boar 514
Class, An Illustrous 74
Clipping for Horses, Value of 115
Cocaine and Adrenalin in Acute Foot Infections 325
" Supply, The 402
Colic, Adrenalin Chlorid in 68
" and Azoturia Simultaneously 348
" Drench, A 205
" " A Proprietary 259
" Drenches, Useful 263
" Hepatic Rupture During an Attack of .. 564
" Thrombo-Embolic, A Case of 426
Colics of the Soliped, Differentiation of 167
Colorado Meeting, The 310
" Veterinarians Study Disease 310
Conephrin, Experiences with 383
Confidences, by Edith B. Lowry 337
Contagious Abortion, Diagnosis of 204
Conjunctivitis in Chicks 401
Corns, Iodine for 206
" Prevention and Treatment of 107
Coughs, Treatment for 118
Cracked Heels, Astringents for 468
" " For 351

PAGE

Cracked Heels, Successful in 398
Cramp, A Case of 252
Crumbaugh—Branson 313
Cryptodidymus or Hidden Twin 556
Cures, Patent Illegalized 356
Cystic Cryptorchid, A 462

D

Dairy Regulations, Illinois 570
Death of Animals, Notification of 436
Depilatories, Formula for 205
Depilatory Cream 565
Diaphragmatic Hernia 37
" " in a New-Born Foal .. 256
Dictionary, Gould's Pocket Medical 16
" Dorland's American Illustrated Medical 57
" Dorland's American Pocket Medical 295
Diseases Communicable from Animals to Man 213
" Report of Iowa Committee on 372
Dog, An Automobile Injury of 459
Drenching Pneumonia Caused by Arecoline .. 510
Dry Hoofs, "White Rock" for 111
Dyspnea, Peculiar Case of 143
Dystokia, Infection, Laminitis 202
" in the Sow 250

E

Eczema of Horses 111
Edwards, F. H. P., and His Driver 74
Eiseman, E. T., Resigns 316
Emaciation, Rapid 250
Enlarged Fetlocks, An Elastic Stocking for ... 514
Enterohepatitis, Infections 384
Epizootic, Equine, in Kansas 457
Equine Operating Table, An 210
Ethics in Missouri 114
" Some Observations on 183
Eucamphine, Formula for 208
Eversion of the Uterus, Truss Prevents 351
Exostoses and Effusions, Antiperiostin for .. 389
Experiment Station Publications, 60, 64, 90, 127, 128, 134, 135, 241, 298, 381, 382, 495, 552
Extrauterine Influence 253

F

False Modesty, by Edith B. Lowry 337
Farm Papers, Veterinary Departments in 155
Fatal Impaction Caused by Provender 347
Fatalities in Practice, Unexpected 431
Federal Meat Inspection a Fraud 240
Feeds and Feeding, by W. A. Henry 294
Fibromas, Surgical Treatment of 415
Fistula and Poll-Evil Cure, Fleming's 109
Fistulous Withers, Treatment of 67
Fleming's Fistula and Poll-Evil Cure 109
" Lump Jaw Cure, Formula for 109
Foot Affections, Cocaine and Adrenalin in 325
Foot-and-Mouth Disease 448
Foot Lameness: Its Prevention and Relief ... 147
Forage (Mold) Poisoning in Kansas 448
" Poisoning 348
" " A Simple Treatment for 564
" " in a Cow 65
" " Kansas Epizootic Not 557
Formaldehyde for Sterilizing Instruments 102
Formalin for Bursattee 104
Formula Department Appreciated 263
Four Epochs of Life, by Elizabeth H. Muncie . 381
Fracture, Bursattee, and Heat Stroke 399
" Healed by Bone Suture 383
" of the Femur 197
Fractured Femur, Periosteum Will Not Support 559

PAGE

Furuncles with Dark Centers 113

G

Galls and Bruises, Has No Equal for 212
Garget, A Treatment for 206
Gastritis, Acute, in Dogs 309
Gastrophilus Larvae in Tooth Cavities 513
Georgia Veterinary Meeting 153
Glanders, Increase of 412
" in Man 460
Grooming as a Therapeutic Measure 102
Gynecology, Chinosol in 157

H

Hard Feet, For Soaking 205
Health Officer, Veterinarian as a Public 351
" Officers, Veterinary 379
" " " A List of 451
Heat Prostration, Treatment for 516
" Stroke 399
"Heaves," Arecoline Contraindicated in 519
" A Successful Treatment for 154
" Formula Corrected 312
" Prescription for 198
Hemoglobinemia, Gas Injections for 326
Hemorrhage, The Suppression of 471
Hepatic Rupture During an Attack of Colic .. 564
Hermaphrodite, Radical Operation on 112
Herself, by Edith B. Lowry 337
Higher Education, Veterinarian's Interest in .. 274
Hog Cholera and Pneumonia Differentiated ... 344
" " Its Differentiated Diagnosis 93
" " Not Recommended for 67
" " Remarks on 86
" " Serum, Mistakes in the Distribution and Use of 533
" " The Postmortem Diagnosis of 511
Hoof Ointment, A 113
Horse Breeding, Iowa Regulates 393
" Cab, Doomed 259
" Census, Our 75
" One Way to Kill 411
Horse Plague, An M. D.'s Work in 553
" " in Kansas 505
" " Kansas Veterinarians not at Fault in 558
Hospital, First Animal 407
Human Physiology, Brubaker's Compend of .. 295
Hutyra and Marek, Translated 131
Hydrocephalis—Dystokia 349
" Extreme Case of 249
Hyoscine in Chloroform Anesthesia 286

I

Indiana V. M. A., Report of, by E. M. Bronson 298
Indianapolis Preparing for A. V. M. A. 289
Indigestion and the Stomach Tube 33
Influenza of the Horse, Etiology of 500
" with Complications 343
Infectious Vaginitis 76
" " Reply to Query on 117
Illinois Biological Laboratory, Dedication of ... 334
" V. M. A. Entertained by Abbott 39
" Veterinarians Celebrate 30th Anniversary 461
Immunity, by Julius Citron 297
Impaction, on Grass 113
Inspector, Federal, Seek More Pay 203
Intestinal Obstruction from Melanosis 344
" Occlusion in a Dog 75
" Perforation, Unsuspected 109
" Strangulation 37
" " " by Ovarian Ligament 26
" Twist with Fatal Result 343

PAGE

Intradermal Tuberculin Test Efficient..... 305
Intraspinal Injection in the Horse..... 350
Iodine for Corns..... 206
" for Recurrent Ophthalmia..... 148
Iowans Eat Tuberculous Meat and Milk..... 387
Iowa Veterinarians Dedicate New Buildings.. 501
Ireland, A Trip to..... 554

J

Jöhné's Disease..... 317

K

Kansas Meeting a Good One..... 79
Kills Quickly..... 356

L

Laborer and His Hire, The..... 96
Laminitis..... 202
" Treatment for Acute..... 204
Laryngitis, Clinical Report..... 265
Laryngitis, Glyco-Heroin for..... 77
League Needed, Another..... 491
Leucorrhea, Bacterins for..... 116
Life Made to Order..... 492
Lightning Liniment, Formula for..... 25
Lobelia and Antitetanic Serum for Tetanus.. 481
Lobelia for Tetanic Spasms..... 391
" " Tetanus..... 198
Long Step Forward, A..... 91
Luckey, D. F., Retires from Office..... 72
Lump Jaw Cure, Fleming's..... 109
Lymphadenitis, Caseous, in Sheep..... 501
Lymphatic Glands, Relation to Autopsies... 431

M

Malformations, The Embryolic Explanation of 228
Malignant Edema, A Recovery from..... 508
Marshall's Barbed Wire Liniment..... 27
Mastitis, Treatment for..... 349
Materia Medica and Therapeutics, Udall's.. 494
Meat Hygiene, Edelman's Text-Book of.... 16
" Inspection, Federal..... 180
" " Simmons Attacks..... 291
Medication, Minimum Doses Proper..... 461
Medicine, Its Uses and Abuses..... 366
Melanosis, A Case of..... 252
" Intestinal Obstruction from..... 344
Michigan Association Meeting..... 199
Microbiology, Principles of, by V. A. Moore.. 493
Milk, Changes Under Pathological Conditions 479
" Enzyme Content in Diseased Udders... 329
" Fever Five Months from Parturition... 349
" " Uuexpected Death from..... 515
" Inspection, Omaha not as Reported.. 353
" New Tests for Examination of..... 368
" Statistics, Chicago..... 313
Missouri Veterinary Medical Association... 156
Moberly, David, A Suicide..... 23
Modern Formulary, The, by W. L. Cummings. 294
Mohler's, Dr. J. R., Message..... 497
Molar, An Overly Sensitive..... 389
Monon Route to The A. V. M. A..... 190
Morphine and Opium, Action of, on Animals. 359
" Observations on the Action of..... 376
Mortality Statistics, Equine..... 93
Motor Cars and Dogs..... 385
" " and Veterinary Practice..... 186

N

Nan.....465, 521, 585
Nephritis, Chronic, in the Dog and Cat..... 489
Neurosis or a Traumatism, A..... 342

PAGE

Nominations Committee and Politics..... 12
North Carolina Veterinarians Meet..... 468
Nostrums Exposed..... 259
Nuclein..... 103

O

Obstetric Case, Peculiar..... 254
Ohio Didn't Set the Pace..... 308
Ointment, Healing..... 342
Omaha Dairies Among the Best..... 399
Oophorectomy of Cattle..... 424
Ornithodorus Infestation; Death..... 153
Osteitis of the Ox and Horse..... 499

P

Pammel's Poisonous Plants..... 117
" " " An English View.. 210
Paralysis, What Caused the..... 395
Parasitism, Esophageal..... 565
Parturient Paresis, A Rare Case of..... 400
" " Like Azoturia..... 25
" " Pathogenesis of..... 125
" " "Recurrent," Explained.... 40
Parturition, Some After-Effects of..... 195
Paste for Sticking Labels on Tin..... 209
Pasteurization More Practical than Eradication 562
Pathology, McConnell's Manual of..... 10
" Importance of, to the Practitioner..... 52
Pediculidae, Sabadilla for..... 459
Pedunculated Tumor, It Was Not..... 254
Pedunculated Tumor, Was It a?..... 105
Pelvic Flexure, Case of Twist of the..... 394
Pennsylvania Association, A New..... 27
Periodic Ophthalmia, A Treatment for..... 24
Periosteum will not Support a Fractured Femur 559
Physician's Visiting List, Blakiston's..... 17
Physiology, Human, by Albert P. Brubaker.. 493
Pharmaceutical Bacteriology, Schneider's.... 296
" Preparations, Price of the Trade Mark, On 545
Pharmacy, A Manual of, by M. F. De Lorme. 494
Pneumonia in a Cow, Wrongly Suspected.... 201
" and Hog Cholera Differentiated..... 344
Poisoning, Potassium Nitrate..... 204
Poisonous Plants, Pammel's Manual of.... 58
Potassium Iodide for Canker..... 151
Pregnancy, Bilateral Tubal, with Rupture... 512
" Biologic Diagnosis of..... 292
" Extrauterine..... 254
Previous Impregnation, Influence of..... 405
Prices of Drugs, Rapidly Advancing..... 66
Proprietaries, Make Your Own..... 28
Provender, Causes Fatal Impaction..... 347
Pulicicides for Dogs and Cats..... 565
Purpura Hemorrhagica..... 312
Pyonephrosis, A Case of..... 104

Q

Quinine Imports of the United States..... 405

R

Rabies, Child Dies of..... 73
" Explanation for Unusual Cases of..... 350
" in a Cow..... 251
" in an Equine, Peculiar Case of..... 517
" in the United States, Prevalence of..... 378
" with Unusual Sequel..... 250
Rectal Lock Syringe, Kellogg's Satisfactory.. 560
Recurrent Ophthalmia, Iodine for..... 148
Reproductive Cells, The Vitality of..... 233
" Processes of Animals..... 41
Resuscitation of a Horse After Apparent Death 516
Reversion, A Question of..... 342

PAGE

Roup—Catarrhal and Diphtheritic..... 30
" or Diphtheria in Fowl..... 36
" Sequelæ of..... 514
Ruptured Spleen Without Congestion..... 463
Rupture of the Flexor Metatarsi..... 509
" of Prepubian Tendon in Pregnancy..... 303

S

Sabadilla for Pediculidae..... 459
Sarcoptic Mange, An Application for..... 205
Scarlet Dyes, Therapeutic Value of..... 498
Schistocormus Reflexes..... 255
" " Again..... 391
Secret Remedies..... 335
Secretary, The Problem of..... 373
Self-Sucker, To Cure a..... 462
Self-Sucking, A Successful Operation for..... 566
Septic Arthritis of Colts..... 396
Septicemia, Edematous, or Was It Pyemia?... 507
Serum Plant, A New..... 78
Sinusites, The Surgical Treatment of..... 370
Skin Infections, A Treatment for..... 208
Slaughtering Prohibited in Saginaw..... 403
"Slim Jim," Formula for..... 509
Smith Oil, Formula for..... 76
Sodium Nucleinate, The Action of..... 313
Soundness, Examination for..... 311
Spavin, Antiperiostin for..... 77
Spleen, A Large..... 388
Springtime Surgery..... 381
" " by D. M. Campbell..... 99
Staggers in Virginia..... 73
Steno's Duct..... 154
Sterility in Cows..... 547
Sterilizing Instruments, Formaldehyde for.... 102
Stomach Rupture, A Death Probably Due to. 516
Strangles Preventable..... 116
Stringhalt, Effect of Tenotomy for..... 101
Strongyles of the Horse..... 482
Strongylosis, Encephalo-Embolic, or Encranial Strongylogenic Embolism..... 535
Strychnine and Blistering for Atrophy..... 463
Sunstroke..... 400
Superfetation, A Case of..... 261
Suppuration, Chronic, from a Deep Injury... 563
Surgical and Obstetrical Operations, Williams' 295
" Operations, Results of Three..... 357
Swamp Fever..... 11
" " Was It?..... 392
"Sweeney," Turpentine with Chloroform for.. 507

T

Team Work in Illinois..... 292
Telegony..... 405
Tenotomy for Stringhalt, Effect of..... 101
Testicular Teratoma, Noteworthy..... 139
Tetanic Spasms, Hypodermic Lobelia for..... 391
Tetanus in a Wound..... 253
" Lobelia for..... 198
" Peculiar Case of..... 469
" Treated with Antitoxin..... 556
" Treated with Serum and Lobelia..... 481
" Unexpected Fatality from..... 511
The Hair of the Dog for the Bite..... 378
Therapeutics—A Committee Report..... 323
Thrombo-Embolic Incorrect..... 562
Thrombosis of Vena Cava in Ox..... 498
Thymus Gland, Relation to Growth..... 499
Treatment for Alfalfa Impaction..... 399
" of Wounds.....174, 220

PAGE

Truths, by Edith B. Lowry..... 336
Tuberculin Test, Discussion of Intradermal.. 144
" " Not a Mechanical One..... 72
" " Intradermal Endorsed..... 94
" " The Intradermal..... 81
" Testing, Wisconsin Succeeds with 561
" Tests, A Comparison of..... 133
Tuberculosis Found in Cattle..... 356
" Cattle, Locating..... 562
" Immunity of a Dog to..... 565
" In Iowa, Handling..... 560
" in Man, Source of..... 349
" Its Problem and Control..... 1
" Laws Stand in Kentucky..... 196
" Meat, Label It as Such..... 287
" Physical Examination for..... 160
" Raises Insurance Rates..... 401
" Relation of Avian to Mammilian..... 498
" Sunday Observed in Lawrence..... 70
Turpentine with Chloroform for "Sweeny"... 507
Typhoid Prophylactic Vaccination..... 331

U

Ulcers, Allantoin for Indolent..... 568
Umbilical Infection..... 106
Urinary Calculi in the Horse and Dog..... 267
U. S. College of Veterinary Surgeons, Alumni 261
U. S. L. S. S. A., 17th Annual Meeting..... 461

V

Vermicide Capsules, French's..... 309
Vermifuge for Puppies..... 263
Veterinarian as a Public Health Officer..... 351
Veterinarians for More Than a Century..... 353
Veterinarians Much Needed..... 259
Veterinary Colleges, American Druggists'.... 40
" Medicine, by James Law..... 380
" " by Hutyra and Marek..... 493
" Science, Advance of..... 50
" Situation in Iowa, The..... 527
Vivisection Acceptable..... 351

W

Wagner, Doctor, A Victim of Leukemia..... 470
Ward Politics—Wanted in a Scientific Body.. 17
Wart Acid, Formula for..... 208
Warts, A Proprietary for Removing..... 40
Water, A Simple Method of Purifying..... 283
" Contamination and Purification..... 402
White Rock for Dry Hoofs..... 111
Wire Cuts, Liniment for..... 27
World's Work Department, 21, 61, 97, 128, 133, 136, 190, 191, 243, 338, 455, 502, 549
Wound Applications That Are Practical..... 341
" Dressing..... 345
" Healing..... 231
" Treatment, Applications for Successful.. 518
Wounds, Chinosol for..... 312
" in the Dog, The Treatment of..... 301
" Repair of..... 531
" The Local Treatment of..... 306
" Treatment of 174, 220
Wyoming, Veterinary Matters in..... 102

X

X-Ray Shows That Hens Wouldn't Lay..... 73

Y

Year-Book, Ohio V. M. A., Louis P. Cook.... 297

(*Continued from page 579*)

Having witnessed this and many other exhibitions of the power of the underworld to punish or destroy, I went to bed in no pleasant frame of mind and tried through a sleepless night to canvass all avenues through which they might strike back at me, only to come to the conclusion that I must trust to luck and keep my wits about me. As soon as I had my breakfast I got a call from Aunt Mary and went over, hardly knowing what to expect, but prepared for any surprise.

Auntie met me at the door and for once in her life she showed excitement.

"Come right in, doctor, Nan's sick. She must have the chills and fever."

And, sure enough, she certainly did have it; her teeth chattered and she shook until her misshapen body was distorted from the violence of the muscular contractions, only to be followed by the hot spell and the sweat. I hurried home to get my blood instruments and succeeded in finding the plasmodia of the tertian form of ague. This form of the disease I knew by instruction from any preceptor required the old "Arkansaw mixture" of quinine, arsenic and aromatic sulphuric acid, and no time was lost in putting the girl upon it. As I looked the girl over carefully in daylight, I began to realize that I had taken a huge contract on my hands when I had so glibly promised Madame Mindo that I would cure her. The blood count was low in red but very high in white corpuscles, while the hemoglobin was down to fifty per cent or normal. Further examination showed a large spleen, very soft bones, a pair of legs that looked as if they had been moulded around a washtub, softening of the first, second and third dorsal vertebræ, and, as Aunt Mary expressed it, "Good Lord, doctor, you must do something for her diarrhea, as the child suffers awful with it."

Upon examination of the stools, enormous number of amebœas, with blood, mucus and shreds were found, showing a dysentery of the old Southern type. All of these facts had not been obtained without difficulty, owing to the way Nan still persisted in looking at the world, and she could not quite get the notion out of her head that I had some designs on her life and happiness, a notion, by the way, that was accentuated by the treatment it was necessary to adopt to start her on the road to health.

While the old mixture did not disappoint me in killing off the ague, I was up a very large tree when it came to amebic dysentery. My preceptor had failed to instruct me properly, and the textbooks held out little hope except in large doses of ipecac, and it is not a very humorous experiment trying to keep a large dose of ipecac down in the stomach of a very small girl, who has not had years enough to develop any altruistic ideas about the infallibility of the doctor's judgment. We had a "parrot and monkey" time for a few days trying to apply the profound knowledge of the textbook to everyday practice and I was reluctantly compelled to give it up, and tried in every way to give her some relief from the agony caused by the disease, but with very little success, until I hit upon the happy expedient of giving her cold starch water with opium by enema. This was not an easy procedure and required the whole household to sit on her so it could be carried out properly. The relief was so great, however, in a few days, that she could be coaxed by a bag of gum drops to allow me to repeat it at intervals, and gradually the idea came to me of giving my large dose of ipecac in this manner. So she was placed on a tilting table so as to practically hang her up by the heels, and four ounces of the fluid extract of ipecac was given her in a quart of warm water, the bag being hung so as to give about five pounds pressure. She had been quieted with morphine before the process was carried out. In a few minutes a violent vomiting ensued with a reversed peristalsis and the ipecac water began to appear in the material vomited, when she was let down and the bowels began to act. A profuse mucous discharge appeared loaded with uncountable amebœas, while the girl was in a condition of shock requiring the application of heat with strychnine to support her strength. Well! she lived through it and we never had any more trouble with the dysentery, but there was a very badly scared young doctor who sighed with relief as his patient wakened up and asked for something to eat. She was put upon quinine, arsenic and Blaud's iron for her anemia, and made a slow but persistent gain.

Aunt Mary's proteges, whom she had taken with her the night of the rescue, stayed on, making no effort to shift for themselves, until I felt that I must protest to the good lady and give her a realization of the fact that she was being imposed upon.

Blanche was a jewel; she was ambitious and willing to take the burden from the old lady's shoulders while the other two simply loafed and were too lazy to keep themselves clean. So I suggested to her that she get rid of them, but was met with the orthodox argument that they would only go to the bad if she let them go and she proposed to keep them until she had converted them and taught them how to earn a living.

"Well, auntie, I am afraid you have undertaken as large a contract as I have. If you are willing to commit murder you can save Blanche. This girl has an evil genius. He was formerly a bartender, who became inoculated with the race track gambling fever. It was he who started her downhill and it is he that keeps her down. This fellow follows the races all over the country and when he strikes Chicago, he immediately hunts her up and gets her started again, and is willing to live on the proceeds of her shame. As soon as he disappears with the going of the races, the girl reforms and for nine months in the year no better girl ever lived. She has worked for six years for a certain family who think the world of her, and while knowing all about her little lapses, always welcome her back to their kitchen. While she is with them she is honest, industrious, of a charming disposition, and attends her church as regularly as her time will permit. She has never been known to keep company with any young man while at work in their house, and her conduct has always been a mystery to her good mistress.

"When the races come and bring her evil lover, she is transformed and becomes a bird of prey, uses liquor to excess and after a few weeks winds up in some of the public houses. Now, auntie, you may save her, but you can do it only by killing the pest who is dragging her down. The other two girls, Mamie and Sadie, they are beyond redemption. It is doubtful if either one ever had a human soul in their worthless bodies; they have been incorrigible all their lives and at the age of twelve were chorus girls in Dan Rice's leg show, and graduated from this to the Park Theatre, where their physical talent was used to coax callow youths and men who were old enough to know better to buy beer for them at fifty cents a glass. They did a thriving business at this place until the pest hole was put out of existence as a public nuisance. Their language was so vile

after this post-graduate course that their physical charms were not great enough to get them a place at some of the theatres then running, and as this was their sole marketable stock-in-trade, they naturally drifted to the brothel as the only place which was willing to buy what they had to sell. Now, auntie, it is not my business to interfere with your scheme for reforming people, but take my word for it those two girls will give you cause to regret their acquaintance. Both of them are simply beautiful automatons with just brains enough to be dangerous. They have no shame and have posed in some of the lowest street joints as living pictures minus any drapery. Neither one of them could learn to boil water without spoiling it; they have no sense of responsibility and they are converted to the belief that the world owes them a living."

"It's funny," remarked Aunt Mary, "you seem to like them almost as well as Nan; she will not go near them, or allow them to touch her, while she just worships Blanche. Still I owe them a duty, and if I do not do them any good, it will be their fault and not because I have not tried to do my part. I believe the power of the Word can save anyone and I believe it will save those girls."

"Well," I remarked, "I hope your confidence is not misplaced, and no one would be more satisfied with a practical demonstration of His power than I, and if He can do as you think, I shall have a greater and more profound respect for religion in the future."

A Ruction at Aunt Mary's House

"Hey, Doc! Oh, Doc!" This salutation followed me as I started out to make my calls one summer evening, and were emitted by a small but very much excited boy who was following my buggy on a run. The cry was taken up by my friends and neighbors who had taken to the sidewalk to avoid the excessive heat; owing to the passing of a cable train I did not at the moment realize that I was more than the subject of good natured banter, until a fat, Dutch butcher ran into the street ahead of me flapping his white apron frantically, and when he could get his breath, comfortably asked with indignation, "Why don't you stup once?" By this time I began to realize that something required my skill and attention and I tried to make some headway from the excited vernacular of the boy. "Say, Doc, youse is wanted; ders an old girl down the street hollering like a steam calliope for youse to come. I'll show youse de place." So taking the boy in the rig the horse was started on a gallop and we soon reached Aunt Mary's house.

I should have had no difficulty in finding it, however, as a crowd of several hundred people surrounded the place while the good woman was hanging out of the second story window emitting yelps which were almost frenzied in their emotions. When my familiar rig brought up before the door, the people parted so as to make room for me, and while I was trying to make sense out of Aunt Mary's incoherent shrieks, the only intelligible thing I could gather was Nan and Bob, the crippled house dog. I was given considerable information from the crowd: was told that a murder had been committed, and one woman volunteeered the information that she had seen the man run away. He was dark and medium height, had a black mustache and looked like a Dago. As I got nearer to the house I heard that Nan was kidnapped and the dog was killed while defending her, and I did not have any intelligent idea of the trouble until Blanche stuck her head out of the other window and told me Bob had gone mad and had bitten Nan.

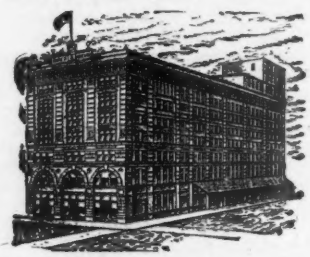
I could not get into the door owing to its being locked, and promptly kicked out a window pane and entered. As I got into the room I observed Nan sitting cross-legged on the center table looking happy, while the dog was running around the room giving tongue to the most unearthly howls. I made several passes at him before I succeeded in getting him by the nape of the neck so I could proceed to investigate the cause of the mystery. This I found shortly and, dropping the relieved dog, I proceeded over to the table, and grabbing Nan by the ear, I asked gravely, "Young lady, can you tell who put that snap clothes pin on the dog's tail?" She looked shocked and very innocent and had about made up her mind to lie when she caught my eye, faltered, hesitated and answered, "Yes." "Well," I said, "I won't ask for any more information on the subject at this time, but I will sentence her to wear it on her ear for ten minutes for two days." I told her that even a dog has feelings that must be respected.

I started to go upstairs to rescue the female contingent when Nan ran and threw her arms around my neck and held on, looking very guilty and apprehensive. "All right, kidlets! I will keep your secret and tell Auntie that Bob had a fit. How will that do?" A quick hug and a scamper off to the kitchen showed me that Nan could appreciate kindness.

When I went upstairs I found Aunt Mary having a beautiful attack of hysterics. She was lying on her back, laughing and crying by turns, and Blanche was skirmishing around trying to get an opening so as to prevent her from injuring herself, and eventua

EIMER & AMEND

205-211 Third Avenue **NEW YORK**



We make a specialty of all Drugs, Extracts, Tinctures, Chemicals, etc., etc., used in Veterinary Practice.
Sulfglycerole—for Skin Lesions.
Sulfglycerole Ointment—for Scratches.
Veterinary Glycerine Suppositories.

Sole Agents For

H. HAUPTNER'S
Veterinary Instruments

Illustrated Catalogue on Request

¶We carry a very Comprehensive Stock of Laboratory Glassware and Apparatus, Chemically Pure Chemicals and Bacteriological Apparatus.

ly several of the neighboring women came in and by piling their combined weight upon her she was anchored so I could give her a hypodermic injection of aconitine and nicotine and in a few minutes she was in a placid state of mind and was drinking in the details of the fracas below. She was rather inclined to be skeptical regarding my explanation, until I called her attention to the fact that there was a new moon and she, with all her southern superstition, was satisfied and Nan escaped what she deserved.

(To be Continued)

THE Director of the Iowa Experiment Station states that a million hogs, valued at more than twelve million dollars, have died of hog cholera during the past three months in the state of Iowa and the disease is at present unchecked.

PAMMEL'S MANUAL OF POISONOUS PLANTS

The complete volume of 1000 pages, hundreds of illustrations and many plates has been acknowledged by the Veterinary Record, and American Journal of Veterinary Medicine, the best and only complete work of this kind in the English language.

You need this in your practice. I have about 100 sets of poisonous plants (about 30 specimens in each set), one of which will be given with every order as long as the sets last.

Price $7.82 including carriage
L. H. PAMMEL, Ames, IOWA

DO YOU WANT TO SELL YOUR PRACTICE ?

VETERINARY MEDICINE'S Classified Ad Columns Will Probably Find You a Purchaser

$1.00 Per Insertion for 25 Words or Less
Invariably Cash in Advance

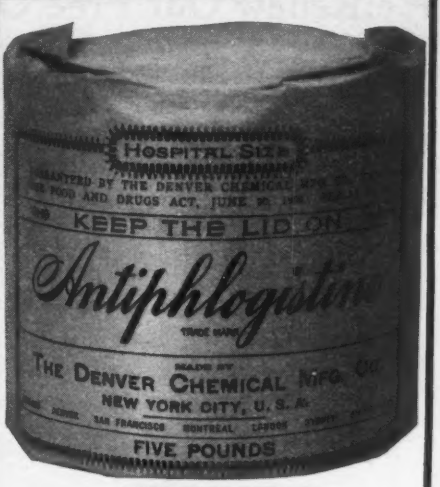
HIGH GRADE PRINTING

NEAT, ORIGINAL AND UNIFORM STATIONERY MEANS MUCH TO THE PROFESSIONAL AS WELL AS THE BUSINSS MAN

Use something *different*, of a better class than that used by butcher or blacksmith. New attractive, up-to-date, neat, dignified stationery *costs no more*, simply requires more thought and the "know how" on the part of the printer. You will take pride in the stationery we print.

Send for free samples from which to select.

THE RAJPUT PRESS, 31 N. State St., CHICAGO



Discard the Poultice

USE

ANTIPHLOGISTINE

FOR

Abscesses	Burns
Inflamed Glands	Distemper
Periostitis	Pneumonia
Bog Spavin	Caked Bag
Capped Knee	Orchitis
Infected Wounds	Sprains
Harness Galls	Scratches
Bruises	Tendonitis

Booklet and Spatula on Request

The Denver Chemical Mfg. Co.
NEW YORK

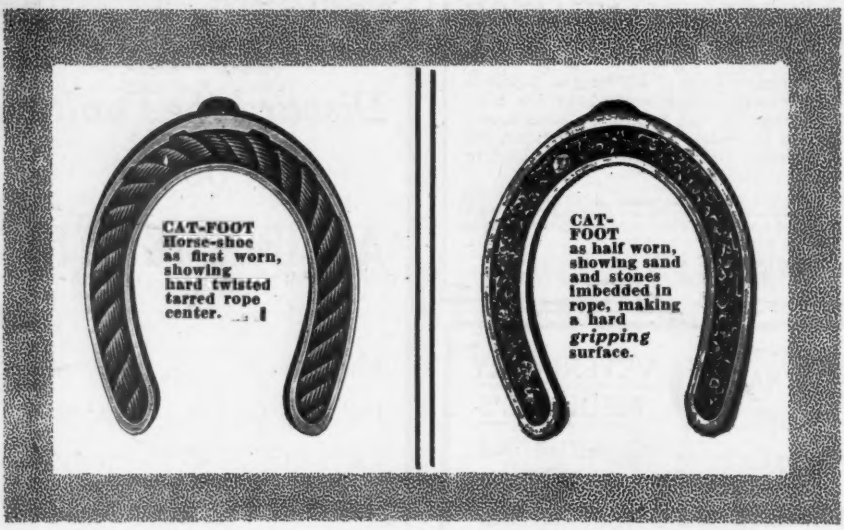
We Renew Our Free Offer to Veterinarians On

Cat-Foots

Famous European Non-Slipping CUSHION PAVEMENT HORSESHOES

Here is the Offer:

Send us your name and address, stating that you are a Registered Veterinarian and giving size of shoes, and we will send you a set *absolutely free*—so confident are we that they will have your *immediate* and *enthusiastic* endorsement.



Try one set of these shoes and you will be amazed at the results you get with them.

Your horses **cannot** slip on wet asphalted streets. The tarred rope centers of Cat-Foots, with their stone imbedded surface, gives your heavy horses a firm footing that they can never get with rubber or combination shoes.

Besides Cat-Foots are absolutely sanitary, whereas rubber and combination shoes cramp the foot and interfere with free circulation of air.

Cat-Foots are "made in Germany," where they have been used for more than 30 years past, as well as throughout Europe generally.

We are introducing them into this country and their sales are increasing with astonishing rapidity—showing that city horse owners and their horseshoes recognize that Cat-Foots finally solve the city horse-shoeing problem.

Dr. Born, the Veterinary Surgeon-General of the Imperial German Army, Recommends Cat-Foots as superior to all other kinds of shoes in relieving and preventing from 50 to 75 per cent of all foot trouble and horse accidents and in vastly increasing the work which a horse can do without overstraining at all times of the year. The endorsement of this high authority amply confirms our claims for Cat-Foots.

THE ROWE RING-POINT COMPANY, Hartford, Conn.

FEB 17 1912

JANUARY, 1912

AMERICAN JOURNAL OF VETERINARY MEDICINE

Sisson's *USED IN EVERY VETERINARY SCHOOL*

Veterinary Anatomy

"Superior to any other upon the subject.

"Its excellence is attested by the rapidity with which teachers of veterinary anatomy have adopted it in their classes.

"It is a book that every practising veterinarian should have, not in his library as a reference work, but *on his desk* as a necessary part of his equipment for diagnosis and surgery."—*American Journal of Veterinary Medicine.*

Octavo of 826 pages, with 588 illustrations, many original and many in colors. By SEPTIMUS SISSON, S. B., V. S., Professor of Comparative Anatomy in Ohio State University. Cloth, $7.00 net; Half Morocco, $8.50 net.

SAUNDERS **SEE PAGE 3**

For the treatment of all respiratory diseases accompanied by cough

Each fluidounce represents:

Spirit Nitrous Ether, 64 minims.	Balsam Poplar Buds, 8 grains.
Morphine Acetate, 1-8 grain.	Sanguinaria, 4 grains.
Chloroform, 4 minims.	Eriodictyon, 4 grains.
Eucalyptus Honey, 96 minims.	Wild Cherry Bark, 16 grains.
White Pine Bark, 32 grains.	Sassafras Bark, 4 grains.
Grindelia, 32 grains.	Alcohol, 14 per cent.

When this preparation was first brought to the attention of the veterinary profession its merits were promptly recognized. That was seven years ago. It has constantly grown in favor ever since. Today it is successfully prescribed by veterinarians in all parts of the United States and Canada.

EQUINE COUGH SYRUP

is a valuable combination of astringents, sedatives and expectorants. The formula printed above shows at a glance why it is so efficacious in the respiratory diseases of animals.

Here are some indications for its use in the treatment of horses:

Influenza, strangles, etc., a few doses in the early stages usually serving to abort the cough;

Acute bronchitis, when cough is troublesome and the irritable membrane dry and vascular;

Laryngitis and pharyngitis, which are best treated in the early stages;

Chronic coughs following an attack of influenza, when the syrup should be given at regular intervals until the cough subsides.

Equine Cough Syrup is equally applicable to corresponding bovine and canine diseases, especially chronic bronchitis of the dog attended by a dry, hacking cough.

Dose: Horses and cattle, 1 to 3 ounces; dogs, 1 to 2 drachms.

Gallon bottle (list price), $3.15.

NOTE.—Equine Cough Syrup purchased in bulk quantities, on which we quote special prices, permits a handsome profit for the veterinarian who dispenses cough syrup under his own label. Write us.

Descriptive Literature Accompanies Each Package.

Home Offices and Laboratories,
Detroit, Michigan.

Parke, Davis & Co.

MICROBIOLOGY

A Book Adaptable to the Needs of the Veterinarian

CONTRIBUTORS

Frederic T. Bioletti, M. S.
University of California

R. E. Buchanan, Ph. D.
Iowa State College

M. Dorset,
U. S. Bureau of Animal Industry

S. F. Edwards, M. S.
Ontario Agricultural College

W. D. Frost, Ph. D.
University of Wisconsin

F. C. Harrison, D. Sc., F R. S. C.
Macdonald College

F. G. Hastings, M. S.
University of Wisconsin

H. W. Hill, M. B., M. D., D. P. H.
University of Minnesota

Walter E. King, M. A.
Detroit, Michigan. Research Laboratory, Parke Davis & Co.

Jacob G. Lipman, Ph. D
Rutgers College

W. J. MacNeal, M. D., Ph D.
University of Illinois

E. F. McCampbell, S. B., Ph. D.
Ohio State University

Earle B. Phelps, S. B.
Mass. Institute of Technology

Otto Rahn, Ph. D.
Michigan Agricultural College

M. H Reynolds, B. S., M. D., D.V.M., *University of Minnesota*

Walter G. Sackett, B. S.
Colorado Agricultural College

W. A. Stocking, M. S. A.
Cornell University

Charles Thom, Ph. D.
U. S. Department of Agric

J. L. Todd, M. D., D. Sc.
McGill University

Edited by

CHARLES E. MARSHALL

Professor of Bacteriology and Hygiene, Michigan Agricultural College

It treats of the Morphology and Culture of Microorganisms; their Physiology (including Nutrition and Metabolism), physical and chemical influence upon them, and their influences upon each other.

Many features make it especially of value to the veterinarian, briefly—The Microbiology of Air, Water, Sewage, Soil, Milk and Milk Products; Preservation of Foods by various agents; Microbial Food Poisoning; Microbiology of the Diseases of Animals; Immunity and Susceptibility; Control of Infectious Diseases; Diseases of Plants, etc.

12mo 128 Illustrations xxi + 724 Pages

Flexible Cloth, $2.50 Postpaid

DESCRIPTIVE CIRCULAR AND SPECIMEN PAGES UPON APPLICATION

P. BLAKISTON'S SON & CO., Publishers

1012 WALNUT STREET :: :: :: PHILADELPHIA

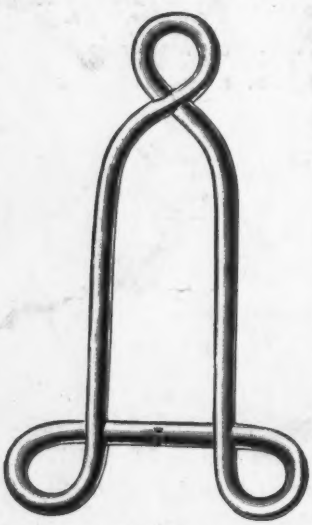
Instruments You Need

These instruments, which have been used by the most prominent veterinarians in the world, are certain to give gratifying results. Their use will increase your reputation.

This Teat Tumor Extractor

has undoubted merit. It will quickly, neatly and thoroughly remove small tumors from the milk ducts of the teats. It is easy to operate.

PRICE $1.50 EACH



Lund's Truss

for prolapsus of the uterus and vagina. It is simple to apply, produces no discomfort, relieves the strain on the ligaments.

PRICE $1.75 EACH

West's Vulva and Anal Clamp

has long been used for prolapsus by the leading veterinarians in Europe with marked success. The next time you have a case of vaginal, uterine or anal protrusion in any animal use West's Vulval and Anal Clamp. It also prevents abortion. Made in four sizes: 2½, 3¼, 4½, and 7 inches long. Write for a special quotation on the size required.

When ever you are in need of any instrument or appliance, consult our catalogue. If you have no copy, write for one.

Like all apparatus bearing our trade-mark, these instruments may be obtained from any reliable dealer, or

The Kny-Scheerer Co.

Manufacturers of Veterinary Instruments of Quality

404-410 West 27th Street, New York

$2.00 A Year Single Copy 25 C

AMERICAN JOURNAL OF VETERINARY MEDICINE

PUBLISHED MONTHLY

BY D. M. CAMPBELL, D.V.S. 1761 LAWRENCE AVE. CHICAGO ILLINOIS

Vol. VII MAY, 1912 No. 5

CONTENTS

LEADING ARTICLES	PAGE
Physical Examination for Tuberculosis, By A. T. Peters	159
Differentiation of Colics of the Horse, By R. P. Lyman	167
Treatment of Wounds, By E. Wallis Hoare	174
Federal Meat Inspection, By A. O. Lundell	180
Some Observations on our Ethics, By J. T. Seely	183

EDITORIAL	PAGE
Correction—Appeal—Declaration	185
Motor Cars and Veterinary Practice	186
The Senate Gets the Army Bill	188
Prevalence of Avian Tuberculosis	188
A. V. M. A. Meets August 26th to 30th	189
The Monon Route for A. V. M. A. Visitors	190
WORLD'S WORK	
Abstracts	190–194

POINTED OPINIONS ON LIVE TOPICS 195-213

After Effects of Parturition—Tuberculosis Laws Stand—Peculiar Breeding Case—Fracture of the Femur—Prescription for "Heaves"—Lobelia for Tetanus—Fatal Accident from Partial Anesthesia—Michigan Association Meeting—The Carabao (Water Buffalo)—Wrongly Suspected Case of Pneumonia—Dystokia—Infection—Laminitis—Inspectors Seek More Pay—Diagnosis of Contagious Abortion—Treatment for Cracked Heels and Bog Spavin—Saltpeter Poisoning—Typhoid Bacilli Increase in Milk—Looking for a Panacea—Treatment for Acute Laminitis—Application for Sarcoptic Mange—Colic Drench—Proprietary Colic Drench—Formula for Depilatories—For Soaking Hard Feet—Iodine for Corns—Campho-phenique; A Report—Transportation Regulations—The Removal of Fetal Membranes—Treatment for Garget—A Vermifuge for Puppies—Saunders Handsome Illustrations—Prospering in St. Charles—Veterinarian on Grill—Bronchitis—Treatment for Infections—A Valuable Drug Journal—Arecoline Dosage—Choke—Emphysemia—Ophthalmia—Pammel's Poisonous Plants—An Equine Operating Table—A "King's" Opinion of "Veterinary Medicine."—Why no Report from the Secretary?—Has No Equal for Galls and Bruises—Wound Dressings—A Premium for Yours—Death from Filaria Immitis.

"DORLAND"

THE VETERINARIAN'S DICTIONARY

DEFINING MORE VETERINARY TERMS THAN ANY OTHER MEDICAL DICTIONARY PUBLISHED

"It is a working dictionary, and it is very free from padding. It has been used almost exclusively in this office for a number of years, and we never find it failing to meet our needs in every respect."—*Journal of Minnesota State Medical Association.*

SAUNDERS SEE PAGE 3

Entered as second-class matter, July 19, 1910, at the postoffice at Chicago, Illinois, under act of Congress of March 3, 1879

Canine Distemper Vaccine

PROPHYLACTIC. CURATIVE.

(POLYBACTERIN.)

After four years of experimental work in our Research Laboratories, we have succeeded in isolating the germ of canine distemper (Bacillus Bronchianis) and from it prepared a true **Canine Distemper Vaccine** which we are now offering to the veterinary profession for the prophylactic and curative treatment of canine distemper.

CURATIVE.

Through the agency of our Veterinary Department of Experimental Medicine, **Canine Distemper Vaccine** has been thoroughly tested both in our laboratories and by prominent veterinarians in many parts of the country.

A summary of the records of all cases treated with **Canine Distemper Vaccine, Combined** (curative), shows a high percentage of recoveries.

In experiments to determine the value of **Canine Distemper Vaccine, Prophylactic,** none of the dogs treated showed symptoms of distemper after being exposed to infected animals, while 60 per cent. of the untreated dogs contracted the disease.

So favorable were the results of these clinical and experimental tests that announcement of the new vaccines (both curative and prophylactic) is made with full confidence in their efficiency.

PROPHYLACTIC.

How Supplied:

CANINE DISTEMPER VACCINE, COMBINED (curative).—Packages of six bulbs of 1 Cc. each: doses, 1, 2, 3, 4, 5 and 6, respectively, to be injected in their order at intervals of three to five days.

CANINE DISTEMPER VACCINE, PROPHYLACTIC.—Packages of three bulbs of 1 Cc. each: doses 1, 2 and 3, respectively, to be injected in their order, at intervals of three to five days.

SEND FOR DESCRIPTIVE BOOKLET.

Home Offices and Laboratories,
Detroit, Michigan.

Parke, Davis & Co.

Open in pleasant weather

Closed against bad weather

Try this Cosy Cab 30 Days—Free

It is a light, easy-running vehicle adjustable for any kind of weather—rain or shine, winter or summer.

Three simple, one-hand movements open or close the Cozy Cab. The large swinging front window can be opened or closed at will.

The Cozy Cab is the only storm-proof vehicle that is properly ventilated. No foul air—no frost on the windows even in the coldest weather. Smoke, if you like, yet the air in the closed Cab remains fresh and clean without draft.

The genuine Cozy Cab is manufactured only by us. We sell direct from our factory to you—never through dealers or agents. Our Trade Mark on the dash just below the swinging front window is your protection against "imitations." Look for this Trade Mark for it means that we guarantee it and are directly responsible for any complaint.

CASH or CREDIT

During the next few months we want every Veterinarian in the country to know the comfort and convenience of a Cozy Cab by a 30-day Free Trial. To make it possible for those who do not find it convenient to pay all cash down, we will, for a limited time, make a very liberal Installment Offer—part down and the rest in easy Monthly Payments. Send a post card for Catalog and details of this Special Installment Offer.

Fouts & Hunter Carriage Mfg. Co.

805 Third St., Terre Haute, Ind.

HIGHLY POTENT AND RELIABLE

ANTIHOG-CHOLERA SERUM

Produced by competent Veterinarians; thoroughly tested; and none marketed unless proven of high potency. Full instructions for use with each shipment.

We Sell Through Veterinarians Only

For full information write

The HUEBEN SERUM COMPANY, Inc.

DR. FRANK W. HUEBEN, Pres., DR. FRANK H. HUEBEN, Lab. Sup.

702 Live Stock Exchange Bldg.

KANSAS CITY, MO.

Day Phone, Bell Main 1682 — Night Phone, Bell West 976

NON-POISONOUS

THE COUNCIL ON PHARMACY AND CHEMISTRY, A. M. A. HAS APPROVED

NON-IRRITATING

The intense antiseptic

CHINOSOL

STRONGER THAN BICHLORIDE

SAMPLES ON REQUEST

TRY IT ONCE
YOU WILL DISCARD
ALL OTHER ANTISEPTICS

CHINOSOL CO.
FARNELL PHARMACAL CO.
SELLING AGT.,
84 SOUTH ST., N. Y.

Does not coagulate albumin

Does no damage to tissues

SPRINGTIME SURGERY

SECOND EDITION, REVISED AND ENLARGED

Springtime Surgery contains reprints of the ***best articles published in VETERINARY MEDICINE*** on the surgical operations and obstetric problems most common at the castrating and foaling season. These discussions constitute for the practising Veterinarian a valuable supplement to the standard text-books of veterinary surgery and obstetrics.

The first edition (2000 copies) was sold out within 30 days from the time it was received from the printer. This breaks all records for the sale of veterinary books and is evidence of the worth of the book.

CONTENTS

1. ***Castration in Cryptorchids.*** Complete and detailed articles by Professors W. L. Williams (Cornell), and Chas. Frazier (McKillip) and Dr. C. E. Steele.
2. ***Castration in Complicated Cases.*** Describes Monorchids, Anomalies, Hemorrhage after Castration, and Castration in Cases of Scrotal Hernia; articles by Drs. W. R. Barnard, G. A. Johnson, D. M. Campbell, and J. L. Perry.
3. ***Spaying.*** A detailed description for heifers and cats; articles by Drs. A. W. Whitehouse and G. E. Corwin.
4. ***Replacement of the Everted Uterus.*** Articles by Drs. A. J. Treman and S. Meader.
5. ***Diseases of the Young.*** Navel Infection, Persistent Urachus, Contracted Tendons in Foals, Atresia Ani and Care of the Navel; articles by Drs. A. T. Kinsley, Jas. Smellie, C. L. Wilhite and W. L. Williams.
6. ***Minor Means of Restraint.*** Articles by Drs. H. B. Treman and D. M. Campbell.
7. ***Miscellaneous.*** Articles by Drs. H. Jensen, R. F. Bourne, et al.
8. ***General Discourse on Minor Surgery.*** By Dr. Ralph J. St. Perry.

Handsomely Printed on Fine Anglo-Saxon Paper, Cloth Bound, 165 Pages, $1.00 Prepaid.

American Journal of Veterinary Medicine, 1761 Lawrence Ave., CHICAGO